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A

A Personal Skill of Caring for Oneself

►Self-care Development

ABC

►Autism Behavior Checklist

Abecedarian Project

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Synonyms

Early intervention; Prevention of mental retardation

Definition

The Abecedarian Project was an early intervention project conducted by Craig Ramey and Francis Campbell on a mostly African-American sample of children at-risk for academic failure. The children have been followed from preschool into early adulthood with positive intellectual results.

Description

Ramey and Campbell conducted a prospective longitudinal study on approximately 50 children born between 1972 and 1977 [1]. The children were considered to be at risk for intellectual delays and academic problems because they were born to mostly young single mothers living in poverty. Children were screened for inclusion based on the number of risk factors they faced, including low parental education, father absence, receiving welfare, etc. The researchers randomly assigned 50+ matched children to a no-intervention control group as well. The goal of the preventive intervention was to prevent cognitive delay or non-biologically based mental retardation. Additional areas of interest included academic and social outcomes ranging from preventing grade retention to preventing teen crime.

Interventions for the preschool group included intensive pre-literacy work on language, learning, self-help, and motor skills. The children were also provided medical care at the intervention preschool site. Treatment children were exposed to high quality preschool with low adult/child ratios for the first 5 years of life. Interestingly, at kindergarten, both the intervention and control children were then randomly assigned to a school age (SA) intervention plan. This SA intervention consisted of assigning children to a home/school teacher who helped children with school work at home and at school. They also advocated on behalf of the families for social services, medical care, etc. The SA intervention continued for 3 years. This study design resulted in four groups that could be compared at the study's end: Preschool + School Age Interventions (PSA), Preschool + No School Age (PNSA), No Preschool + School Age (NPSA), and No Preschool + No School Age (NPNSA) intervention.

During preschool, children were assessed on language, cognitive, perceptual-motor and social developmental tasks from 6 to 54 months of age. By 18 months of age, the intervention group had reached national averages on all tests and far surpassed the control group, which declined by 18 months of age to below national averages.

When assessed at 12 and 15 years of age [2], the PSNSA group still showed academic and intellectual advantages over groups that had not received early preschool intervention. For example, IQ scores for PNSA were average 95 points while the NPNSA group averaged 90. The NPSA group had advantages over the NPNSA group, but overall, later school age interventions were inferior to those conducted during the preschool years.

The children were assessed again between ages 16–21 [3] in order to determine whether they had a better quality of life, including fewer criminal behaviors. However, there were no significant differences found between the groups in numbers, types, or severity of crimes committed. The authors suggest that to prevent crime, interventions must

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involve systematic work with families, not just their children.

The most recent assessment was in 2002 and examined the children at age 21 [4] to examine overall life outcomes. They found that the preschool intervention group versus the control group experienced fewer grade retentions (31 vs. 54% were retained) and was assigned to special education less frequently (24 vs. 47%). The preschool intervention group obtained more total years of education, attended college more, had fewer teenage pregnancies, and were better at reading and math. The NPSA group had better results than the NPNSA group, but weaker than those for children who had received the earliest intervention services. There were no differences between groups for violence and law breaking behavior.

The Abecedarian Project is considered by many to be an exemplary human experiment illustrating the power of brain plasticity in the early years. Their early work set the foundation for current movements like *Zero to Three* (www.zerotothree.org), and *First Five* (http://www.ccfc.ca.gov/default.asp), which provide resources, education, and materials about early brain development and emphasize the need for early stimulation to enhance developmental outcomes.

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Abilify

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Synonyms

Aripiprazole (generic name); Atypical antipsychotics; Partial dopamine agonist

Definition

Abilify (Abilify) is an atypical antipsychotic medication indicated for acute and maintenance treatment of adult as well as adolescent (13–17 years of age) patients with Schizophrenia. The medication also is indicated for acute and maintenance treatment of manic and mixed episodes associated with Bipolar I Disorder with or without psychotic features in adult and pediatric (10–17 years of age) patients [1].

Description

Abilify was developed by Otsuka Pharmaceutical in Japan and jointly marketed in the United States with Bristol-Myers Squibb [1]. Clinical trials sponsored by the manufacturer have resulted in the Food and Drug Administration (FDA) approving the use of Abilify as an atypical antipsychotic [1–3]. The FDA first approved Abilify for the treatment of adult Schizophrenia in November, 2002. The medication received additional approval by the FDA for the acute and maintenance treatment of manic and mixed episodes associated with Bipolar I Disorder, with or without psychotic features in adults September 2004 and March 2005, respectively. All of the adult trials were double-blind, placebo-controlled studies of 4–6 weeks' duration. Abilify also was approved by the FDA in November, 2007 for treating adolescents (13–17 years old) with a primary diagnosis of schizophrenia. The efficacy and safety of Abilify for use with this population was based on a manufacturer-sponsored 6-week, double-blind, randomized, placebo-controlled, multi-center study, with 302 ethnically diverse pediatric patients. Patients met DSM-IV criteria for schizophrenia and had a positive and negative syndrome scale (PANSS) $\geq$70 at baseline. In this trial, two fixed doses of Abilify (10 mg/day or 30 mg/day) were superior to placebo in the PANSS total score, the primary outcome measure of the study. The 30 mg/day dosage was not shown to be more efficacious than the 10 mg/day dose. Maintenance efficacy in pediatric patients with Schizophrenia has not been systematically evaluated. In February 2008, following a 4-week, double-blind, placebo-controlled study with 296 pediatric patients from multiple sites, the medication received approval for the acute treatment of manic and mixed episodes associated with Bipolar I Disorder in patients 10–17 years old. Participants in the trial met DSM-IV criteria for Bipolar I Disorder manic or mixed episodes with or without psychotic features and had a young mania rating scale (YMRS) score $\geq$20 at baseline. Both fixed dosages of Abilify (10 mg/day or 30 mg/day) were superior to placebo in change from baseline on the Y-MRS total score. Based on a similarly designed clinical trial (n = 197 pediatric

patients) the FDA approved Abilify in May, 2008 for the maintenance treatment of pediatric Bipolar I Disorder.

The most common side effects exhibited in pediatric clinical trials included somnolence, extrapyramidal problems, fatigue, nausea, akathisia, tremors, and headache [4]. In addition, pediatric patients with Major Depressive Disorder who receive Abilify as an adjunctive treatment may experience initial worsening of their symptoms of depression and/or the emergence of suicidal ideation and behavior [1, 5]. This is particularly problematic with the early use of the medication or during changes in dosage. Abilify is available in 2, 5, 10, 20, and 30 mg tablets and also may be administered as an intramuscular injection or as an orodispersible tablet [1]. The recommended target dose for pediatric patients is 10 mg/day with subsequent increases at 5 mg increments [1]. The medication may be administered without regard to meals and is primarily metabolized by the liver [4].

Similar to other atypical antipsychotic medications (e.g., clozapine, risperidone), Abilify's exact mechanism of action is not fully understood [6, 7]. However, the receptor interactions due to Abilify are understood to be unique and dissimilar to other atypical antipsychotic medications [6, 7]. It has been proposed that the antipsychotic efficacy of Abilify appears to be mediated through either dopamine-serotonin partial agonists and/or by working through the mechanism of "functional selectivity" [8]. Abilify likely exerts its effect by combining a partial agonist of dopamine D_2 and serotonin 5-HT1$_A$ receptors and a potent antagonist at serotonin 5-HT2$_A$ receptors [6, 7, 9]. Two biochemical responses are likely the results of Abilify's partial agonism [10]. First, when postsynaptic dopamine levels are too high, Abilify competes as an agonist thereby dulling positive psychotic symptoms while at the same time avoiding the movement disorders typically associated with nonspecific dopamine antagonism. Simultaneously, Abilify reduces dopamine release and synthesis which produces a neurotransmitter stabilizing effect which blunts excess activity until neurotransmission can be returned to preferred levels. It is hypothesized Abilify's partial agonist activity at 5-HT1$_A$ receptors and antagonist activity at 5-HT2$_A$ receptors contributes to lowered risk for extra pyramidal signs as well as improvements in cognition and negative symptoms [9]. Further reported benefits of Abilify compared to other atypical antipsychotics include a lower incidence of weight gain and sedation, and an absence of elevation in levels of serum prolactin [7].

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Ability Grouping

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Synonyms

Setting (Great Britain); Streaming (Great Britain); Tracking

Definition

Ability grouping is a term referring to a wide variety of school practices that group students for instruction according to one or more measures of academic ability or achievement including their grades, teachers' recommendations, measured IQ, standardized or locally developed achievement tests, etc.

Description

Ability grouping is intended to foster homogeneity in academic ability within educational environments. Ability

grouping can occur within classrooms, between different classrooms or educational programs within schools, or even between schools, as is exemplified in countries like Germany. Sometimes students in different ability groups receive basically the same curriculum, with those in higher-ability groups just moving somewhat faster or covering topics in greater depth. In other situations, classes of different ability levels are presented with very different subject matter, such as math classes covering general math or calculus [5].

In the United States, as well as in many other countries, the nature and extent of ability grouping typically varies with students' age. Specifically, in the U.S. within-class ability grouping is quite common in the early elementary grades. So, for example, students are often placed in small within-class groups, based on their existing skills, to learn how to read. However, as students get older, and most strikingly in high school, between-class ability grouping becomes typical. In the last century, it was quite common for high schools in the U.S. to track students, that is to divide them into completely separate tracks explicitly designed to provide a strong academic focus to academically-talented students, a "general education" for less academically-oriented students, and vocational training for students heading into the workforce immediately after graduation. Now, high school students are more likely to enroll in individual classes that are more or less challenging with other students who are more or less advanced academically, rather than in completely separate tracks or programs, allowing them to match their classes to their individual academic interests and strengths. However, often scheduling and other considerations seriously constrain such choices, creating a situation in which high- and low-ability students are not typically found in the same classrooms.

Although various forms of ability grouping are extremely widespread, ability grouping, especially in its stronger forms, is very controversial. Those favoring ability grouping argue that it allows teachers to target instruction more precisely to students' existing skills than do heterogeneous grouping practices. It is also sometimes argued that students will learn better in academically-homogeneous environments. Specifically, one major concern is that low-ability students in an instructional group will not only limit the kinds of material that can be presented but will slow other students' progress. Arguments favoring ability grouping also sometimes suggest that it will protect the self-esteem of low-achieving students by sparing them constant direct comparison with their academically stronger peers. In addition, ability grouping, combined with the provision of a different curriculum for higher- and lower-achieving students, is sometimes seen as helpful in preparing students who will begin work immediately after school to do so effectively.

In contrast, those opposing ability grouping point out its many disadvantages [2, 3]. For example, they argue that it is not easy to accurately and fairly assess achievement and/or ability and that research shows that factors like socioeconomic background and/or minority group membership sometimes influence placement in ability groups. In addition, they highlight research showing that teacher quality, instructional processes, and the classroom climate are often more favorable to learning in classes containing high-achieving students than in those containing mainly low-achieving students, which means that ability grouping is likely to further impede the progress of initially low-achieving students. They also point out that ability grouping in schools generally increases racial, ethnic, and socio-economic segregation there, due to the consistently found co-variation between socio-economic status, minority group membership and common measures of academic ability and achievement. Thus, they argue that ability grouping undermines the potential of schools to serve a constructive role in preparing students to function effectively in the diverse societies in which many of them will live as adults.

Generally speaking, reviews of the research on ability grouping conclude that *within-class* ability grouping has a modest positive impact on achievement compared to both within-class heterogeneous grouping and whole-class instruction [6]. However, reviews of the research on *between class* ability grouping come to conflicting conclusions. Those focusing on experimental studies, which typically do not involve situations in which higher-achieving groups are presented with very different subject matter than lower-achieving groups, suggest that this practice has no clear overall effect on academic achievement, although one review concludes that it may have a small positive impact on the achievement of initially high-achieving students. In contrast, reviews emphasizing correlational studies, which often are conducted in situations involving some degree of curriculum differentiation, generally suggest that ability grouping at the class or school level has a clear and sometimes substantial negative impact on the achievement of initially lower-achieving students. Some also suggest a modest positive impact of ability grouping on the achievement of initially higher-achieving students.

The fact that many studies of between-class ability grouping suggest either no achievement advantage to it and/or negative effects on initially low-achieving students led to strong calls to abolish such practices, and quite a number of schools and school districts in the U.S. moved in this direction during and after the 1990s.

However, such efforts often meet strong resistance from both teachers and from parents, especially the parents of relatively high-achieving students. Some studies have documented very good results from de-tracking efforts, with markedly improved achievement for many students and no negative impact on initially high-achieving students. On the other hand, it is also clear that such efforts often cause a great deal of strife and they sometimes have unintended negative consequences, such as when the de-tracking of Japanese schools led many high-achieving students to leave the public school system for private schools.

Relevance to Childhood Development

Ability grouping influences students' social and academic experiences. Ability grouping influences their social development by commonly undercutting the potential for students to interact with and develop friendships in school with those from other racial, ethnic, and social class backgrounds. Such a consequence is important because the formation of such friendships appears to have a positive impact on students' intergroup attitudes.

Whether or not ability grouping is practiced also impacts students' academic experiences in predictable ways. Specifically, the research literature strongly suggests that classes with high-ability students tend to be better learning environments than those with large concentrations of low-ability students for a wide variety of reasons related both to the individual characteristics students bring with them and to the kinds of learning environments schools are likely to provide to initially higher- and lower-achieving students [1, 4].

The policy problem posed by ability grouping for those concerned with child development is twofold. First, some forms of ability grouping, such as within-class grouping, appear likely to have modest positive academic effects but negative social effects, because they are likely to reinforce students' predisposition to interact more with those similar to them than with peers from different racial, ethnic or social class backgrounds. Second, some forms of ability grouping, specifically ability grouping with curriculum differentiation, appear to undercut the achievement of some students while possibly enhancing that of others. Even if the negative impact of such forms of ability grouping on lower-achieving students is somewhat stronger than their positive impact on high-achieving students, as sometimes appears to be the case, decisions about whether to adopt such practices are difficult because they often involve trade-offs between losses and gains in different realms and/or for different kinds of students.

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Abnormal Presentation

►Birth Complications

Abort

►Abortion

Abortion

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Synonyms

Abort; Dilation and Evacuation (D&E); Miscarriage; Termination

Definition

(1) The spontaneous or induced termination of pregnancy after conception. (2) To miscarry a nonviable fetus [1].

Description

An abortion is a legal, safe, and effective medical method to stop or interrupt the growth and development of a fetus. Even though abortion is a legal medical procedure,

the availability of services has been under political and ethical debate for quite some time [5]. In fact, the availability of abortion services depends on federal and state policies. However, in the United States, abortion has not always been under ethical and political debate. As a matter of fact, up until the second half of the nineteenth century, abortion was not viewed as morally wrong if it was performed before 4–5 months of pregnancy. During the second half of the nineteenth century, abortion was preformed quite frequently using drugs, special potions, and techniques espoused by popular medical guides. Additionally, abortion procedures were often preformed by mid-wives and physicians. The first laws governing abortion were enacted in 1821 and 1841; however, these laws were specifically put in place to prevent women from using unsafe abortion procedures, not to punish women for having abortions [3].

During middle nineteenth century, abortion was a growing trend among white, married, and protestant women. During this time, abortion became commercialized, which worried the new emerging class of predominately male physicians. These new medical professionals expressed concern that the number of abortion procedures in the middle and upper class, protestant, white population would eventually wipe out Catholics, which would ultimately result in whites being outnumbered by the African American and immigrant population. The created an uproar within the medical community. In addition to mid-wives being banned from giving abortions, physicians began to create laws and policies to control abortions. Between the period of 1860 and 1960, stringent laws against abortion and contraceptives were enacted. Women who sought abortions were guilty of murder and were sent to jail. It wasn't until January 22, 1973, that the US Supreme Court ruled 7-2 in *Roe v. Wade* that women have a right to terminate pregnancy based on the constitutional right to privacy established in the 1965 case, *Griswold v. Connecticut* [2].

There are two types of abortion procedures that can be used legally, safely, and effectively. The most common procedure is done in a medical center and is referred to as an aspiration procedure. Another procedure, which is less commonly used, is the D&E procedure (dilation and evacuation). An Aspiration is usually used up to 16 weeks after a woman's last period and a D&E is generally used after the 16th week of pregnancy. An abortion that is carried out beyond the 24th week of pregnancy is likely due to serious health reasons [4].

The following information outlines the specific steps generally covered during an abortion procedure. The following was adapted from [4].

During an **aspiration** abortion:

- Your health care provider will examine your uterus.
- You will get medicine for pain. You may be offered sedation — a medicine that allows you to be awake but deeply relaxed.
- A speculum will be inserted into your vagina.
- Your health care provider may inject a numbing medication into or near your cervix.
- The opening of your cervix may be stretched with dilators — a series of increasingly thick rods. Or you may have absorbent dilators inserted a day or a few hours before the procedure. They will absorb fluid and get bigger. This slowly stretches open your cervix. Medication may also be used with or without the dilators to help open your cervix.
- You will be given antibiotics to prevent infection.
- A tube is inserted through the cervix into the uterus.
- Either a hand-held suction device or a suction machine gently empties your uterus.
- Sometimes, an instrument called a curette is used to remove any remaining tissue that lines the uterus. It may also be used to check that the uterus is empty. When a curette is used, people often call the abortion a D&C — dilation and curettage.

An aspiration procedure takes about 5–10 min. But more time may be needed to prepare your cervix. Time is also needed for talking with your provider about the procedure, a physical exam, reading and signing forms, and a recovery period of about 1 h.

D&E

During a **D&E**

- Your health care provider will examine you and check your uterus.
- You will get medication for pain. You may be offered sedation or i.v. medication to make you more comfortable.
- A speculum will be inserted into your vagina.
- Your cervix will be prepared for the procedure. You may be given medication or have absorbent dilators inserted a day or a few hours before the procedure. They will absorb fluid and grow bigger. This slowly stretches open your cervix.
- You will be given antibiotics to prevent infection.
- In later second-trimester procedures, you may also need a shot through your abdomen to make sure there is fetal demise before the procedure begins.
- Your health care provider will inject a numbing medication into or near your cervix.

- Medical instruments and a suction machine gently empty your uterus.

A D&E usually takes between 10 and 20 min. But more time is needed to prepare your cervix. Time is also needed for talking with your provider about the procedure, a physical exam, reading and signing forms, and a recovery period of about 1 h.

In addition to the two aforementioned abortion procedures, a medical abortion method is also available. A medical abortion is an abortion induced by taking a medication that ends a pregnancy. Mifepristone and methotrexate are the two FDA approved abortion pills available. Mifepristone works by blocking the hormone progesterone, which causes the lining of the uterus to shed (menses). Methotrexate was FDA approved for treating a cancer, but can also be used to end a pregnancy. It can be injected with a hypodermic needle or it can be taken orally. Methotrexate stops the implantation process that takes place during the early weeks of pregnancy. A third drug is indicated and is to be taken in conjunction with one of the above medications. It is called Misoprostol and causes the uterus to contract and empty, which ultimately ends the pregnancy.

- The abortion pill, unlike the aspiration procedure, takes much more time to complete termination. Women who choose the abortion pill will generally have to wait 2–3 weeks before termination is complete. Mifepristone is a quicker method for completing abortion compared to methotrexate. There are several symptoms that are likely to occur after taking the abortion pill that users should be aware of. They include vaginal bleeding after taking the first drug, which may be light or heavy, cramping, which may be light or heavy, and both bleeding and cramping may be more than what a woman may experience on her period. Complication from taking the aforementioned medications include dizziness, strong cramping, nausea or vomiting, diarrhea, temporary fever or chills, and temporary abdominal pain.

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Abstract Mapping

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Synonyms

Concept formation; Mental mapping

Definition

Abstract mapping refers to the process of linking the essential conceptual elements from two sets of information to form new knowledge.

Description

Abstract mapping is a psycholinguistic model that attempts to explain the processes needed to form concepts as well as to organize and to integrate information to support memory, reasoning, and learning [1, 2]. Abstract mapping is an extension of models used to describe young children's acquisition of new vocabulary, syntax, and expressive language skills [1, 3, 5, 7].

Mapping refers to the connecting of the underlying elements (abstract) from two sets of information to form a new concept. The connections or correspondences are made between a familiar knowledge base (source) with new stimuli (target). The correspondences are based upon similarities of perceptual features, functions, relationships, and meanings. The process of forming and altering connections contribute to the increase and expansion of knowledge [1, 3, 4, 5, 7].

Correspondences can be created across linguistic and spatial domains [1, 3, 4]. These correspondences influence the development of schema or a framework to organize knowledge domains. Language is used to divide domains into smaller categories to facilitate storage and retrieval of information from memory [1, 3, 4, 6].

Abstract mapping is a model used to depict the intricate network of concept development and learning.

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Abused Children

►Battered Child Syndrome

Academic Ability

►Mental Age

Academic Achievement

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Synonyms

Educational; Scholastic; School performance/achievement

Definition

Academic Achievement is the progress made towards the goal of acquiring educational skills, materials, and knowledge, usually spanning a variety of disciplines. It refers to achievement in academic settings rather than general acquisition of knowledge in non-academic settings.

Description

Unlike typical forms of achievement, academic achievement is usually viewed without a definitive endpoint. Rather, the concept is understood as a spectrum along which one can "achieve" certain skills and knowledge, always with the possibility of further developing those skills and increasing the depth, breadth, and specificity of knowledge.

Academic achievement revolves around the central goal of improving the educational knowledge of the students. Because of this goal, the measurement of achievement is often criticized for maintaining a focus on content knowledge rather than problem-solving or product-fashioning skills across a range of materials, which many argue are equally crucial to the definition and measurement. As a result, academic achievement inevitably corresponds with what was taught; students would be unlikely to "achieve" an understanding of material that was not taught, and in this respect, academic achievement is very dependent on teachers and curriculum.

With the overall goal of content evaluation, academic achievement is considered a measure of the educational material that was learned or acquired, with the effort, attitude, motivation, intelligence, or potential of a student having no bearing on the final academic achievement score. While these characteristics may be highly related to the outcome measure, academic achievement itself does not provide a measure of these characteristics. Rather it measures the progress students have made towards the goals set forth by the academic institution and the state-wide or national standards. Academic achievement may measure how well these characteristics have been applied towards acquiring skills and knowledge, but the assessment does not directly factor any of these characteristics into the measure.

Academic achievement is typically measured through two common methods: subject grades given by teachers or professors and standardized test scores, either state-wide or national. While these measures are widely used and may be the best available measures of this concept, obvious criticisms arise in using subject grades and large-scale test scores as a standardized measure of academic achievement. Grades for the same level of achievement may fluctuate widely between teachers and schools based on curriculum and standards, and standardized testing may include a measurement of a student's test-taking ability rather than only measuring the underlying content knowledge.

In addition to these common measures, other assessments have been developed in an attempt to eliminate confounds of subject grades and standardized tests. Various adaptations and revisions of the Woodcock-Johnson psychoeducational battery and the wide range achievement test (WRAT) are two of the more commonly used assessments in this area. However, these tests are administered on an individual basis and can become time-consuming, making them difficult to administer on a large scale.

Relevance to Childhood Development

Academic achievement is widely used as a common outcome measure in the field of child development. School-based and developmental interventions very often target improvement in academic achievement as a main indicator of success, as academic achievement is widely suggested to be an indicator for future success, both academic and otherwise. Research has outlined the direct correlation between academic achievement and many other outcomes of positive development, such as likelihood of college enrollment, quality of future education, prospective careers, and even a decrease in delinquent behavior. In sum, research suggests that academic achievement is strongly related to overall positive development.

In establishing a need for intervention, a student's individual academic achievement scores are compared to the standard scores, both within the school and state or nation-wide, to determine if a student has acquired the academic skills typical of their developmental cohort. In addition, academic achievement scores are often used in conjunction with intelligence testing to determine the presence of a learning disability.

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Academic Delay of Gratification

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Synonyms

Delay of gratification; Reward discounting; Self-control; Self-regulation

Definition

Academic delay of gratification refers to students' postponement of immediately available opportunities to satisfy impulses in favor of pursuing important academic rewards or goals that are temporally remote but ostensibly more valuable.

Description

Bembenutty and Karabenick [4, 5] develop the concept of academic delay of gratification to apply the general construct of delay of gratification to learning contexts. This theoretical approach extends the work of Mischel [6] on delay gratification. Bembenutty and Karabenick [4] demonstrated extensive associations between academic delay of gratification and students' achievement motivation tendencies and use of learning strategies with a scale specifically designed to assess students' tendencies to delay gratification in an academic context (academic delay of gratification scale – ADOGS; [4]). Students reporting greater preference to delay of gratification in an academic context reported also high academic motivation (e.g., higher in self-efficacy and intrinsic interest in learning). They are more likely to use cognitive (e.g., critical thinking, elaboration, organization, and rehearsal), metacognitive, and resource management strategies (e.g., effort management, time and study environmental control, and help seeking). Students' amount of time dedicated to study and the effective structuring of their study environment, as well as their efforts to persist on tasks are directly related to academic delay of gratification. Further, students more likely to delay gratification also reported higher levels of persistence when tasks were less interesting or more difficult [1].

Students' preferences for academic delay gratification are related to self-regulatory processes considered essential to academic success [7]. Self-regulation is an essential component of development. Individuals use diverse strategies to facilitate the implementation of intentions and goals. These strategies may be especially important when alternatives to studying become available. When individuals experience internal or external distraction from enacting intentions, such self-regulatory strategies as selective attention and the control of encoding, motivation, emotion, the environment, and information processing are assumed to help them remain task focused. An example of the relevance of control strategies for delay of gratification is the selective attention that children employ to avoid visual contact with attractive alternatives to the delayed reward [6]. Similarly, the studying student could avoid thinking about the positive consequences of attending the party and, using motivational control, focus on the negative consequences of not studying for the impending exam. Students who delay are also more likely to have available and use self-regulated learning strategies.

Motivational analyses of academic delay of gratification include such factors as the relevance, value, and expectancy for immediate reward versus delayed reward options. Bembenutty [3] found that willingness to delay gratification depends on an individual's expectancies, beliefs, goals, and values. Expectancy and value influence the decisions that learners will make regarding stay home

studying for a test or going out to have fun with their friend even when the homework may not be completed. The expectancy and value placed on the delay task as well as on the nondelay alternative will determine the feasibility of attaining a delayed reward. Students' preference for academic delay of gratification is a function of their expected value of alternative courses of action. Whether the student delays gratification (in order to study) would depend on the likelihood of successful exam performance given that she studies, compared to that of attending the party, and the degree of interest, utility, importance and cost of these alternatives [2].

Relevance to Childhood Development

Children's preference for academic delay of gratification is an essential component of their development and maturity. To be responsible members of the society, children need to acquire the skills and willingness to postpone immediate available reward that are temporarily available but which are less desirable. Learning to prioritize between what is more valuable and conducive to reach long-term goals is a desirable social element that parents and teachers could instill on children. Children needs to learn the necessary self-regulatory skills to learn academic materials, but they also need to develop the ability to engage in goal setting, selecting strategies, monitor goal attainment, engage in effort regulation, time management, and self-evaluation in order to reach their academic potentials. Longitudinal studies have shown that children's ability to delay gratification positively predict adult's self-regulatory competencies.

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Academic Problem-Solving Skills

▶Analytic Intelligence

Academic Readiness

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Synonyms

Learning readiness; School readiness

Definition

Academic readiness is an estimate, based on qualitative and/or quantitative information, about whether a preschool child is ready to handle the various demands of the structured educational environment.

Description

There is no universal definition for academic readiness. Many kindergarten teachers, parents, and early childcare providers believe that academic readiness involves being "healthy, well-fed, and well rested; being able to express their needs, wants, and thoughts; and being enthusiastic and curious about new activities" [10, p. 23]. According to Buntaine and Costenbader [4], developmental age, which is the rate through which a child progresses through developmental stages, is the most commonly used method of assessing academic readiness. Still others believe a more effective way of predicting later academic success is through using psychometrically sound empirical tests which measure specific cognitive, pre-academic, and emotional regulation skills [1]. The Phelps Kindergarten Readiness Scale (PKRS, [9]), for example, measures domain-specific areas which are predictive of later academic achievement [1]. Specifically, the PKRS measures Verbal Processing, Perceptual Reasoning, and Auditory Processing. The Brigance Inventory of Early Development-II (IED-II) is a measure of school readiness which measures skills in motor, language, academic, daily living, and social-emotional domains [3]. The motor section consists of fine motor and gross motor functioning, the language section consists of receptive and expressive language areas, the academic section has a general/cognitive section as well as a prereading/reading section, and the daily living section consists of a self-help and

a prevocational section. All these skills are considered important in terms of success in academic learning environments.

Some believe academic readiness is an ecological construct dependent on a complex combination of a child's skills, their kindergarten teacher, the relationship between the child's family and the school, and the school system [1]. Johnson-Fedoruk [6] believes that even among school readiness assessment tools which are empirically validated, these tools do not consider the various complex "interactions and peculiarities" which occur inside the actual classroom, and therefore even these empirically driven tests may lack validity (p. 2). According to Johnson-Fedoruk, the child's behaviors inside the classroom, and their relationship with their teacher, are the "most obvious attributes" which make a child most prone to academic failure (p. 2). Therefore, although empirically driven tests measure specific skills within domains which are known to be predictive of later academic success, these tests may not have actual predictive validity when it comes to the real classroom. Rather, Johnson-Fedoruk believes school readiness tests should consider variables such as "student behavior, familiar structure, ESL status, age, and personality," which are more predictive of academic success (p. 4).

McClelland and colleagues [8] believe that behavioral functioning is an important factor to consider in school readiness. Children are expected to master specific behaviors before they enter kindergarten, as commonly outlined by early learning standards [7]. For example, when going from preschool to kindergarten, children must be able pay attention, follow instructions, and refrain from engaging in inappropriate behaviors [8, p. 947]. When children control their impulsive behaviors and pay attention, they are better able to perform classroom appropriate behaviors, such as following instructions and completing tasks. According to McClelland and colleagues [8], children in prekindergarten who display higher levels of behavioral regulation also display higher levels of "emergent literacy, vocabulary, and math" (p. 955). Moreover, attention, working memory, inhibitory control, and social-emotional competence were predictive of literacy and math skills from Kindergarten to Grade 6 and predictive of growth in literacy and math skills from Kindergarten to Grade 2. On the other hand, kindergarten children who are rated by their teachers as being disruptive and aggressive are also more likely to be considered at risk for academic failure [7]. Not only are these disruptive children more likely to underachieve academically and score lower on standardized cognitive achievement tests, but they are also more likely to be rejected by their peers [8]. Evidently, students who lack these learning-related skills are at risk for performing poorly in all areas of school performance.

Competence in the use of language is an indicator of academic readiness as well [5]. The Bayley Scales of Infant and Toddler Development: Third Edition [2] as well as the Brigance IED-II [3] both measure expressive and receptive language. Children's success in school depends on their child's ability to verbally communicate with their teachers and peers. Receptive language, which is the ability to comprehend verbal information, is related to the ability to understand directions from teachers. Even the ability to tell stories, which is a form of expressive language, can be used as a measure of school readiness [5]. Narratives reflect how the child conceptualizes their current situation, which is indicative of their level of cognitive and language development. Children who are unable to tell stories in a clear and coherent manner are at risk for development difficulties. These deficiencies in language and intellectual functioning may be exposed in the classroom as difficulties in following and participating in routines, poor early academic performance, and poor social interactions with peers and/or teachers. Furthermore, children who engage in numerous literacy activities in preschool produce higher quality narratives than children who did not engage in such activities [5]. Kindergarten curricula have become increasingly academic, with stronger emphases on literacy skills. Due to this trend, more preschool children are being labeled as academically "unready" to enter the educational world, and are being placed in prekindergarten transitional programs. As a result of this dilemma, some experts argue that kindergarten should be less focused on global academic goals instruction, and instead provide individualized developmental programs within the regular classrooms [4].

Social-emotional skills, such as "self-control, self-concept, social competence, initiative and curiosity, and persistence and reflection" are also important for academic readiness and later academic success [7, p. 38]. According to Logue [7] preschool children should demonstrate the ability to contribute to the overall effort of the group, demonstrate respect and fairness to others, and display effective interpersonal communication skills (p. 40). Many states now have preschool curriculums which teach these social and emotional skills in addition to the academic skills which are taught. For example, the Maine Early Childhood Learning Guidelines are based on the assumption that children will do better academically when they have the "social skills and behavior that enable them to develop meaningful relationships with adults and peers" [7, p. 38]. Without having these appropriate social skills, children miss out on the academic skills being

taught, especially if these children are being removed from the classroom for behavior problems.

Preschool children who come from impoverished home and neighborhood environments are often labeled "unready" for preschool and/or kindergarten. Often these children present with health, behavior, and social problems, which subsequently lead to academic difficulties. In terms of behavior regulation, children who come from chaotic and disorganized home environments have difficulty matching their behavior and temperament to the highly structured environment of the classroom [5]. Children with low socioeconomic status (SES) backgrounds are also less likely to receive adequate verbal stimulation and/or proper materials to play with than their more affluent peers. Children who do not receive adequate verbal stimulation in the home tend to have difficulties functioning at age appropriate levels in "receptive and expressive language, reading ability, and math achievement," which are all important skills later on in school [5, p. 281]. Children who face these multiple risk factors also show lower levels of executive functioning skills, as indicated by lower scores on standardized cognitive achievement tests which purport to measure aspects of executive functioning, such as working memory [8]. These low scores on intelligence tests can be attributed back to the fact that children with low SES are less likely to have quality verbal interactions with their primary caregivers and/or less likely to have intellectually stimulating toys to play with, as mentioned earlier. For example, lack of verbal stimulation from their parent(s) may affect the child's performance on tests measuring Verbal Processing and lack of exposure to proper play materials, such as puzzles, may affect performance on tests measuring Perceptual Reasoning.

Parents have the choice of sending their child to daycare and/or preschool. Day cares tend to focus more on social and behavioral development, as they provide activities such as art, singing, cooking, and gardening; preschools tend to focus more on pre-academic skills. The multiple risk factors which low income children experience are compounded when they receive poor quality daycare. In fact, research has proven that poor quality day care leads to lower intellectual levels and higher behavioral problems, at early and middle childhood, among children from lower socioeconomic groups [5]. According to Logue [7], poor quality preschool programs not only neglect to teach appropriate preacademic, social/emotional, and behavior skills, but actually reinforce negative social behaviors which lead to poor social adjustment and poor academic performance. Conversely, higher quality day care has been shown to lead to higher levels of intellectual functioning and social-emotional development, and lower levels of behavior problems amongst its students [5]. This is especially true for at-risk children who come from impoverished home environments and attend high quality day care facilities [7]. In fact, high quality daycare has been shown to be a protective factor which contributes to the resilience of at-risk children. Unfortunately, disadvantaged children are far less likely to receive quality child care than children from higher SES groups as their parents cannot afford to send them to such programs. In light of the fact that high quality day cares produce positive results and poor quality day care produces negative results amongst at-risk preschoolers, many states are adopting standards for early education [7]. Early child care programs should attempt to increase the overall competence of the child, and increase the amount of support in their lives. For example, the Maine Early Childhood Learning Guidelines requires preschools to address skills related to social development, the learning of literacy, math, science, social studies, health, physical education, and creative arts. The quality of preschool child care is dependent upon the training the child's educator receives and the quality of social interactions the child and educator have with each other [5]. In fact, early childhood teachers should be trained to foster social and emotional development in their students [7].

According to Buntaine and Costenbader [4], nearly half of all children entering kindergarten are at risk of future academic failure because they are not developmentally mature enough for structured classroom instruction. Members of the Gesell Institute believe that learning disabilities, emotional disturbance, and underachievement are due to developmentally immature children being expected to perform at levels outside of their abilities (p. 41). Children in kindergarten or preschool who are believed to be unready for the next level of instruction either stay home an additional year before entering kindergarten, attend a prekindergarten program, spend 2 years in kindergarten, or attend a prefirst grade class after kindergarten. Those who advocate for holding children back a year argue that doing so is a preventive technique aimed at avoiding academic failure before it can occur. They believe that spending an additional year in a learning environment which is less demanding allows a child to become ready for the next level of education. This hypothesis, however, has not been supported by research. In fact, the majority of "prefirst" programs have not been shown to produce significant

advantages in the later academic performance. Studies have found that children who attended "prefirst" programs did not outperform their non-retained counterparts in Grade 1 in areas such as math achievement, social maturity, self-concept, and attention. Additionally, it has been shown that students who waited an extra year between kindergarten and first grade did not perform better academically in Grade 3 compared to their peers who were not held back a year. Students who have been held back a grade also have higher rates of social/emotional problems and significantly higher drop rates compared to their non-retained peers [4]. Plevyak and Morris [10] stress that students who are older than the majority of their peers are more likely to engage in high risk sexual behaviors and use alcohol and cigarettes (p. 24). Therefore, the practice of holding preschool children back a year before entering kindergarten is questionable.

Relevance to Childhood Development

Academic readiness depends on a multitude of child characteristics including pre-academic skills, language competency, behavior regulation, social-emotional development, and the level of development enrichment in earlier home and other care environments. A child's level of functioning in any of these areas will contribute significantly to their later achievement in the actual classroom. Unfortunately, children who come from impoverished environments are at-risk for being underdeveloped in one or more of these areas. Research indicates children who seem to be developmentally unready for the next level of education should not be held back a year, but rather, they should have individualized plans which cater to their strengths and needs.

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Acceptability

►Social Validity

Acceptance and Commitment Therapy

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Synonyms

ACT (pronounced as one word rather than as individual letters (e.g., "ACT" not "A-C-T"))

Definition

Acceptance and commitment therapy is a third-wave behavioral psychotherapy based on relational frame theory (RFT), a comprehensive behavioral account of language and cognition, whose primary treatment goal is to increase psychological flexibility.

Description

Relational Frame Theory

A comprehensive account of language and cognition from a behavior analytic perspective has emerged: RFT [6]. Several dozen studies have tested the tenants of the theory (see [6] for a comprehensive review), which in brief claims that human beings learn at an early age to derive bidirectional relations among events in certain contexts and

to alter the functions of events due to these relations. For example, a young child may learn that "cat" is the same as "C-A-T" and a small furry animal. With these two trained relations, (a) all bidirectional relations among these three events will probably be derived without explicit training (e.g., "C-A-T"=a small furry animal), and (b) the functions of each related event will alter those of the others. For example, if that child is now scratched by this small furry animal, fear may be shown when the child hears "oh, there's a cat," even though the oral name and aversive events have never occurred together.

RFT leads to important implications for the understanding of language and cognition and thus for psychotherapy. It helps explain why core beliefs or "schemas" tend to be resistant to change, for example, or why suppression and avoidance of thoughts, feelings, memories, bodily states and other private events are both likely to be counterproductive. It also suggests a number of alternatives to currently popular psychotherapy methods: instead of trying to alter negative thoughts, for example, and thus elaborating an already troublesome cognitive network, one might alter the contexts in which these thoughts have behavior regulatory functions. Empirical RFT literature suggests that direct attempts to challenge cognitions may be ineffective or counterproductive [6].

Acceptance and Commitment Therapy

Overview

The Acceptance and Commitment Therapist's main goal is to alter the social/verbal context in which negative private experiences relate to destructive forms of overt behavior [9]. Altering the context is effective because the disruption of the context shows the client that such relationships between stimuli are just talk rather than prescribed realities. In addition, adding more constructive relations to problematic relational networks is more effective than trying to eliminate existing relations.

The goal of altering the context is accomplished in three ways: (a) by reducing experiential avoidance; (b) by reducing excessive literality; and (c) by helping people make and keep commitments to behavior change.

Experiential avoidance is the tendency to attempt to alter the form, frequency, or situational sensitivity of private events (e.g., painful thoughts) even when doing so interferes with valued actions. A vast literature (see [10]) shows that experiential avoidance is among the more pathological psychological processes known to psychology. Yet this process seems virtually ubiquitous [9]. In ACT, the agenda of attempting to control or eliminate negative private events are not viewed as the solution to psychological suffering, but rather they are viewed as a core feature of psychological suffering. They are the problem because attempts to control private events are often unsuccessful, counterproductive, and invalidating [9]. They are also unnecessary. Instead of altering the form of private events (e.g., changing an irrational thought to a more rational alternative), ACT therapists seek to alter the social/verbal context. This is preferred because attempting to control private events is often ineffective and because altering the context is effective in allowing clients to embrace their fear.

Thoughts and feelings emerge from a person's unique history. When a deliberate attempt is made to control these events as a means of behavior regulation, one's history immediately becomes "the enemy." Histories do not change, however, except by the addition of new features. For example, a history of sexual abuse may lead to feelings of vulnerability and a fear of intimacy. A person desiring close, committed relationships may attempt to reduce these feelings so that relationships are possible, but some degree of vulnerability and fear is a natural result of such a history. Unable to make time go backwards, the person may dissociate, drink, or use drugs to "get through" the fear, but this only makes the fear more important, and more linked to overt behavior, while it also reduces closeness – the very goal of relating with others. Furthermore, if fear is something one must not have then fear is something to be afraid of and to focus on – as a result the fear only increases. This provides a concrete example of the reasons why emotional avoidance is likely to be unsuccessful, counterproductive, and invalidating.

In ACT, clients are taught instead to embrace their fear, to defuse from their thoughts, and to focus instead on valued actions that will create a meaningful human life.

Scores of techniques are used, but a few examples can be given. Clients may be asked to say fearsome words (e.g., "I'm bad") out loud rapidly until all verbal meaning is momentarily lost and only the sounds remain. Clients may be asked to watch their own thoughts float by like leaves on a stream, leaving a psychological distance between the person who is aware of these thoughts and the literal thoughts themselves. Clients may be asked to deliberately produce painful emotions in a context of dispassionate observation of their experiential features: where they begin and end in one's body, what words are triggered by them, what memories pop up in association with them, what behavioral urges emerge when they are contacted, and so on. Clients may be asked to label their own ongoing behavioral streams with such phrases as "now I am having the feeling of anger" rather than "I am angry" or "now

I am having the thought that I am bad" rather than "I'm bad." The client may be asked to say negative thoughts very, very slowly, or to sing them, or to say them in a funny voice (see [8] and [9] for more therapeutic techniques).

The purpose of such methods is to reduce the literal importance of thought, but without a direct, literal challenge to thought, and to replace emotional avoidance with acceptance and open exploration. In so doing, the automatic effects of one's history are an interesting focus of observation, not a focus of deliberate change needed in order to produce new behavior. Metaphorically, private events are the exhaust of life, not the engine or steering wheel.

Once this shift has occurred, the focus of ACT shifts to values and overt action. Once one need not accomplish the difficult job of first altering one's insides before beginning to live a valued life, clinical attention can turn to living a valued life itself. Values clarification exercises help focus the client on the life he or she would choose to live if they had a choice. Specific behavioral commitments and exercises then create new behaviors that move in that valued direction, all the while watching for thoughts and feelings that heretofore would have been barriers to movement and now are instead to be accepted and experienced.

ACT is not unique in promoting acceptance. Several traditional methods (e.g., Gestalt therapy) have done so. What is unique is that (a) a scientifically viable theory of language and cognition is now driving and coordinating acceptance based interventions into a new and more coherent whole, and (b) these methods are entering into empirical clinical work, based on clinical manuals and careful experimental research.

The impact of these methods can be significant as controlled empirical work shows that ACT can have a significant impact on many forms of psychopathology (see [7] for a recent review).

The Hexaflex

The ACT therapist directly targets empirically supported processes of change that are grouped into two general categories: mindfulness and acceptance processes and commitment and behavior-change processes. Together, these two groups of processes foster psychological flexibility.

The mindfulness and acceptance processes consist of contact with the present moment, acceptance, defusion, and self-as-context. Contact with the present moment is defined as consciously experiencing internal and external events as they are occurring. Acceptance refers to a behavior, rather than an attitude, of actively embracing feared private events. Acceptance does not mean "white knuckling" or resignation, but rather truly opening up to experiencing what one experiences when one experiences it. Defusion involves experiencing one's thoughts simply as thoughts rather than their referents. Finally, self-as-context is perhaps best understood in contrast to two other common senses of self: the conceptualized self and the self as process of ongoing self-awareness. The conceptualized self is the sense of self one experiences when one experiences oneself as a collection of verbal categorizations (e.g., I'm shy, tall, Caucasian, nice, smart, etc.) whereas the self as process of ongoing self-awareness is conscious awareness of present experiences with mere description and explicitly without judgment (e.g., I'm having the thought that I'm nice). Self-as-context involves ongoing self-awareness with the added awareness of the locus from which one observes one's private experiences (i.e., I/here/now).

The behavior-change processes also consist of contact with the present moment and self-as-context, but include the additional processes of values and committed action. Values are life domains we choose to pursue on a moment by moment basis. They are more like directions in that one can never achieve a value in the way that one can achieve a goal. For example, one may value being a loving spouse, and no matter where one is with respect to this value one can always be more loving. Values are also not feelings. Committed action involves acting toward concrete goals, which are generated based on idiosyncratic valued directions, while simultaneously attending to the other processes of change. Committed action is aimed at achieving larger and larger patterns of effective behavior.

ACT with Children

Empirical work on ACT with children is still in it's infancy, and although several are underway no randomized trials of ACT have yet appeared with children or adolescents. A book-length description of acceptance-based methods for child and adolescent psychopathology recently appeared [4] which summarizes some of this early work.

One empirical reason to believe that the extension of this work to children is warranted is that measures of ACT processes in child and adolescent populations operate very similarly to those in the adult population. For example, age appropriate measures of psychological inflexibility have found positive correlations with measures of child internalizing symptoms and externalizing behavior problems, and a negative correlation with quality of life [5].

A second reason is that early trials have been quite supportive. For example, in an open trial with a group of 14 adolescents with idiopathic chronic pain Wicksell, Melin, and Olsson [13] found improvements follow ACT

in functional ability, school attendance, catastrophizing, pain intensity, and pain interference. These gains were retained at a 3- and 6-month follow-up. Additionally, a small randomized controlled trial [12] compared a brief ACT intervention to multidisciplinary treatment plus amitriptyline for chronic pediatric pain. The ACT group showed substantial and enduring improvement and when follow-up assessments were included the ACT group performed significantly better on perceived functional ability in relation to pain, pain intensity and pain related discomfort.

Parental experiential avoidance has also been examined. The impact of parental experiential avoidance on children's emotional development and behavior has been demonstrated [3] as has it's impact on parenting effectiveness [1]. Parental and child outcomes have been improved as changes in parental mindfulness processes occur [2, 11].

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Suggested Readings

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Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change.* New York: Guilford Press.

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Suggested Resources

Association for Contextual Behavioral Science www.contextualpsychology.org

Accommodation

▶Adjustment

Accommodations, Classroom

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Synonyms

Classroom modifications

Definition

Classroom accommodations are adjustments made in the classroom that allow students with special needs to participate in regular education. These accommodations remove the barriers that would otherwise impede a child's ability to participate due to the nature of the disability. Accommodations and modifications are often used interchangeably. However, they have slightly different connotations. Modifications alter the nature of the

classroom including standards and expectations. Accommodations remove barriers without altering what is expected and being measured.

Description

Who are These Accommodations for?

For students who have disabilities and meet criteria for an individualized education plan (IEP) under The Individuals with Disabilities Improvement Act of 2004 (IDEIA) typically have accommodations written in the IEP. These are individualized accommodations that have been identified as being essential in educating the particular student. For students who do not meet the requirements for classification but still have a disability are covered by Federal law under Section 504 of the Rehabilitation Act of 1973 and can have classroom accommodations written into their 504 plan. Classroom accommodations are individualized based upon the specific disability and needs of the student [3].

What are some of the more Typical Accommodations and how do they Look?

There are accommodations used for making the classroom and school environment accessible for those with physical disabilities. Computers, technology, ramps, and elevators are some accommodations used to allow these students equal access to education. For example, voice recognition software may be used for a student with limited use of his hands.

Accommodations for students with visual or hearing impairments can include Braille, sign language interpreter, computer software, or large print [2].

Accommodations for students with learning disabilities often include testing accommodations such as extra time, the use of a computer, the use of a word processor, the use of a calculator, being allowed to record answers, and having directions and questions read [1].

Accommodations for students with health impairments may include being allowed to eat and drink during class and frequent rest breaks.

Other accommodations that can be used for students with various disabilities include being allowed extended time to complete assignments, breaking down assignments into manageable parts, and giving a student a second set of textbooks to keep at home [4].

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Additional Resources

Bateman, B., & Herr, C. (2006). *Writing measureable IEP goals and objectives*. Verona, WI: Attainment Publication.
Siegel, L. M. (2007). *The complete IEP guide: How to advocate for your special ed child* (5th ed.). San Francisco: Nolo Publication.
Classroom interventions for children with ADD & learning disabilities. http://www.childdevelopmentinfo.com/learning/teacher.shtml

Learning Disabilities Resource

www.ldonline.org

Accommodations and Modifications Law

http://www.wrightslaw.com/links/free_pubs.htm

Accommodations, Piagetian

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Synonyms

Adaptation; Adjustment; Change; Modification

Definition

A term coined by Jean Piaget; a cognitive process that involves developing or changing a schema (i.e., mental representation) to fit information encountered in the environment [1].

Description

Jean Piaget's theory of cognitive development includes the concept of accommodation. This cognitive process involves the development and alteration of mental representations, schemas, as individuals encounter new situations. It is the process by which we learn and develop our cognitive abilities. Accommodation, unlike the process of assimilation, requires a great deal of mental energy, thus individuals typically prefer to assimilate (i.e., a cognitive process that involves encountering something in the

environment that fits into an existing mental representation, or schema) more than they accommodate [1].

Relevance to Childhood Development

Children prefer routine in their environment so that they are able to assimilate information that they encounter. When put into a new situation, some children take longer to accommodate to the new environment. For example, when taking young children to a restaurant for the first time, they may have to accommodate their behavior (e.g., lowered voice, staying in their seat, etc.) to fit the expectations of the environment. They are accommodating the information, and as caregivers will attest, some children do it more quickly than others.

Another example of accommodation involves family separation. Some children face separation from family members (due to divorce, military service, relocation, etc.) and are forced to accommodate this information into their schema for daily life. The accommodation process may take children awhile as they seek to understand the change in their environment. Experts typically recommend that caregivers keep children's routine as normal as possible as they deal with this type of separation. Piaget would explain that by keeping their routine normal, you are providing more opportunities for assimilation, so that they are able to use some of their mental energy to accommodate the separation.

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Acculturation

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Synonyms

Adaptation; Assimilation; Cultural transmission

Definition

The term acculturation, used in social science research, was first proposed and defined as a "phenomena which results when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups" by anthropologists Redfield et al. [9].

Description

Acculturation refers to the process whereby the attitudes and behaviors of people from one culture changes when they interact with the people of another culture, typically the dominant or host culture. It is generally accepted that there will be mingling of both cultures as each culture interact and changes one another to a certain degree. Assimilation on the other hand refers to the process where the minority culture will be absorbed into the dominant culture until people of the minority culture adopts the dominant culture completely. Acculturation focuses on the group level rather than at the individual level.

Another term – psychological acculturation, which is termed by Graves [3], refers to the effects of acculturation at the individual level of study. Two dimensions exist at the individual level – behaviors and values. Behavioral dimensions of acculturation involves the choice of language use and participation in cultural activities while values dimensions involves the relational style, person-nature relationships, beliefs about human nature, and time orientation. It is common to observe faster behavioral changes to fit in with the dominant culture within one generation while values changes are slower and occurs across different generational level.

Two model of acculturation exists to explain how groups acculturate. The linear or unidimensional model suggests that acculturation occurs on a continuum where the group either holds strongly to the original culture or adopts the dominant (host) culture. The bidimensional model on the other hand suggests that groups can vary on the continuum of how strongly they hold on to the original culture and simultaneously vary on the continuum of how strongly they adopt the dominant (host) culture. Berry [1] suggests that there are four possible outcomes of the bidimensional acculturation model – assimilation (involves the adoption of the dominant culture completely), integration (involves the synthesis of both cultures), rejection (involves the rejection of the dominant culture), and marginalization (involves the rejection of both original and new culture). While this fourfold model of possible outcomes of acculturation are appealing, other researchers have call this into question (see Rudmin [10] for further reading).

Psychological acculturation is an important construct for physical and mental health professionals because it allows researchers and providers alike to understand the extent to which the minority individual may be receptive to the treatment goals and plan that may be developed for the dominant culture (White, middle class Americans for the most part). To this end, researchers, to understand

better the acculturation process of the ethnic minority individuals, have developed many psychological acculturation measures. Most of these measures were developed with specific ethnic groups in mind, which limit the generalizability of any one instrument across different cultural groups.

Relevance to Childhood Development

The large number of first generation Asian American and Hispanic/Latino/Latina population that are in the United States currently suggests that they may experience psychological acculturation that may influence their mental and physical well-being. First generation ethnic minorities that were born in America or at an early age, came to America would have an easier time acculturating to the dominant (host) culture easier and faster compared to those who immigrate here in their adolescence or at a later age.

At the same time, the parents of the child who immigrate to the United States may have a harder time adjusting to the local culture, custom and norms after they had strongly socialized to the original culture, customs and norms of their place of origin. This may results in conflict between the parents and the child whereby the parents may want the child to hold on to their ethnic/racial, country of origin values, and custom while the child may choose to follow the dominant culture values and customs. The pressure of fitting in with their peers, especially for ethnic minority adolescents, to escape ridicule from peers and be more American is a strong motivator to acculturate quickly. Depending on the resolution of the conflict between the parent and child, professional helpers may need to be recruited to help mediate and educate the family about this struggle to fit in with the dominant culture.

A positive resolution of this conflict between holding on to the values and customs of the country of origin or ethnic background and adapting to the dominant culture values and customs will result in an individual who is biculturally competent in negotiating the intricacies of both cultures. Children who are have the opportunity to learn about their own cultural history and values by their parents and community while at home and to be allowed to learn the dominant culture at school will have a better chance to be a biculturally competent individual than their peers who are forced or choose to adopt one culture over the other.

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Accuracy

▶ Validity

Acetylcholine

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Synonyms

Chemical compound; Neurotransmitters

Definition

A neurotransmitter, $C_7H_{17}NO_3$, that is released at the neuromuscular junctions. It has been associated with learning and memory.

Description

Acetylcholine (ACh) is one of the first identified neurotransmitter in the nervous system. Similar to electrical signals, neurotransmitters are the means by which neurons communicate with each other in biological processes, including sleeping, cognition, emotion, memory, hunger, and movement. Neurotransmitter communication is mediated by several mechanisms that either accelerate or decelerate release of neurotransmitter. It has been documented that coexistence of more than one neurotransmitter in a neuron makes it possible to exert multiple effects simultaneously [4].

Acetylcholine is the most studied neurotransmitter because it is released at the readily observable neuromuscular junctions. Typically, ACh is synthesized and stored in synaptic vesicles that are catalyzed by choline acetyltransferase. Once ACh is released, it is binds to receptors, then is degraded and re-synthesized. Acetylcholine is associated various systems in the body, such as with neurons that excite skeletal muscles, neurons in the autonomic nervous system, and the central nervous system [4].

In addition to stimulating muscle-skeletal movement, researchers have documented that Acetylcholine is linked to brain regions that carry out memory and learning. Injections of cholinergic agent enhance the performance of learning and memory in animal and human experiments. For example, it has been observed that the presence of ACh in the hippocampus increases when rats engage in hippocampus-dependent tasks [8]. Furthermore, the release of ACh has a positive correlation with improved task performances [2]. Studies have provided additional evidence that the release of ACh in the amygdale may enhance memory formation. Studies also suggested that decreased ACh might affect learning. For example, intra-amygdala injections of histamine H_3 receptor antagonists not only reduce ACh release but also impede learning [7].

Finally, studies in Dementia of the Alzheimer type offer further verification that Acetylcholine is related to memory. It is observed that there is a massive depletion of ACh and loss of cholinergic projections in the brain [9]. It is hypothesized that ACh boosts the magnitude of visual search and reduce interference [6]. At the neuronal level, ACh has differential effects on the firing of cortical and thalamic neurons [5], as well as inhibition of distracted variables [1].

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Achievement Motivation

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Synonyms

Need for achievement

Definition

Achievement motivation is the need for excellence and significant accomplishment, despite what rewards may be offered after the achievement has been met.

Description

Atkinson and his colleagues formed the concept that achievement motivation stems from two separate needs. One is the motivation to achieve and is related to one's desire to accomplish successful goals and the other is the motive to avoid failure.

Some people may be hesitant to take on the responsibilities of having to accomplish goals or employ in activities

because they are afraid to fail. The motive to avoid failure includes worries about the consequences of failing, self-criticism, and diversion of attention, accelerated heart rate or nervousness, which can all lead to poor performance.

In contrasts, those who feel the need to achieve successful goals are more motivated to persist at goals they know they can accomplish. By doing this, individuals are more likely to avoid running into failure. Most people develop both forms of motivation for achievement. However, achievement behavior is dependent on which need is more dominant.

Individuals high in motive for success are characterized by a tendency to tackle challenging tasks because they have a relatively low motive to avoid failure.

Relevance to Childhood Development

Children can develop high achievement motivation when parents encourage independence in childhood, praise success, and associate achievement with the child's ability and effort.

Recent literature shows that specific tasks, environments, and contexts, influence the development of achievement motivation. In addition, children's need to outperform other students or to avoid negative feedback also influences achievement motivation. As students move up from middle to high school they are expected to accomplish more difficult work while keeping up with their peers. With these expectations, children need to be able to develop the appropriate form of motivation in order to achieve normative success with their peers.

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Achievement Testing

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Definition

Achievement testing refers to the practice of using achievement tests to efficiently measure the amount of knowledge and/or level of academic skills an individual has acquired or mastered through the planned instruction that typically occurs in educational settings [1]. The practice of administering achievement tests may take place in the fields of *school psychology*, *clinical psychology*, and *special education* to assist in assessing academic proficiency or diagnosing *learning disabilities*, as well as in the field of *clinical neuropsychology* to assist in detecting individual strengths and deficits in patients with neuropsychological disorders affecting reading, computation, or writing skills [4].

Description

Achievement testing is a procedure of utilizing standardized achievement test batteries to assess the academic skills and abilities acquired from the process of direct educational instruction or intervention. Standardized achievement tests are characterized by being available from large publishers that have sufficient resources to employ professionals and test developers, by including a fixed set of test items designed to measure a clearly defined subject area across a wide span of age and/or grade levels, and by following specific directions for administering and scoring the tests [2]. The procedure of administering and scoring the tests in a consistent manner to nationally representative groups produces a statistical profile composed of data (test scores) that form norms, which enable comparisons between an individual's test score and a large group of individuals at the same age or grade level who have also taken the test [2, 3].

A useful standardized achievement test battery must actually measure what it claims to measure (validity) and give consistent results over time (reliability). Achievement tests may be designed to comprehensively assess skills in reading (e.g., decoding, fluency, and comprehension), mathematics (e.g., reasoning and computation), writing (e.g., fluency, spelling, and prose writing), and language (e.g., receptive and expressive) within one battery, such as two widely used comprehensive norm-referenced achievement test batteries, the *Woodcock-Johnson III Tests of Achievement* (WJ III ACH) and *Wechsler Individual Achievement Test – Second Edition* (WIAT-II) [3, 4]. Achievement tests also may be developed to assess knowledge/skills only in a specific subject area, such as the *Gray Oral Reading Tests – Fourth Edition* (GORT-4), or to be used as a limited screening battery, such as the *Wide Range Achievement Test*-3 (WRAT-3) [4].

Norm-referenced, standardized achievement tests can be designed for individual or group administration. Individually administered standardized achievement tests are used primarily for evaluating individual students who demonstrate learning difficulty in school, as well as students suspected of needing additional support or special

education services [2]. The tests can be administered by a trained school psychologist, clinical psychologist, neuropsychologist, resource teacher, or psychometrician to an individual student in a quiet, confidential setting. Group administered standardized achievement tests can be developed by large national test publishers or state-level testing programs that are typically administered at least once a year to a large group of students, an entire classroom, or across grade level(s) to assess what students are able to do in specific subject areas including reading, mathematics, written expression, and scholastic subjects such as science and history [2, 5]. Student performance that is less than expected of a specific grade/age level is usually characterized as academic underachievement which may indicate a need for additional instruction and/or intervention. Individually administered tests tend to be more comprehensive, reliable, and valid than group-administered tests. Nonetheless, individually administered tests require more monetary costs to administer because of the limitation of working with just one subject at a time by a trained school psychologist or other professionals.

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Acne

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Synonyms

Blackheads; Pimples; Pustules; Skin inflammation; Whiteheads; Zits

Definition

A skin disease caused by the over activity of the oil (sebaceous) glands resulting in a localized, irritation of the skin at the base of the hair follicles.

Description

The built-up oil than acts as a host to bacteria; thus, creating inflammation of the skin. Types of skin inflammation vary depending on the depth of the blockage. Blockage close to the surface of the skin is a pustule. A papule, commonly known as a pimple, is also near the surface of the skin by a little deeper than a pustule. Cyst is the deepest type of blockage of oil secretion. Skin inflammation can also occur when the oil breaks through the surface of the skin, commonly known as a "whitehead." And, if the "whitehead" becomes oxidized, oil changes from white to black, the result is a "blackhead." The exact cause of the condition is unknown. However, the increase of hormonal levels and heredity are two factors researchers associate to the over activity of oil glands. The condition begins at the age of puberty and decreases or disappears after the early twenties; however, occurrence is not restricted to any specific age range. Areas of the body commonly effected are the face, neck, back, shoulders, and scalp.

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Acquired Autism

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Synonyms

Autism; Autism spectrum disorders; Autistic; Autistic disorder; Enterocolitis; Regression; Regressive autism

Definition

The sudden presence of autism at 18 months of age following typical development.

Description

Acquired autism is distinguished from autistic disorder, a neurodevelopmental disorder present at birth and detected through the observation of delays in language, social, and vestibular development. Acquired autism is observed when a child develops normally and then "regresses" or appears to develop autism around 18 months of age. Children receive the measles, mumps, rubella (MMR) vaccine around this age and a small body of

research suggests the disorder is related to the MMR vaccine. However, a larger set of data suggests no correlation between autism and the MMR vaccine. Many factors, such as bowel problems, are thought to contribute to acquired autism, but the specific mechanisms remain unknown. The prevalence of acquired autism has been found to be between 22 and 50% of autism cases.

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Acquired Epileptic Aphasia

►Childhood Aphasia

Acquired Immune Deficiency Syndrome (AIDS)

►Acquired Immunodeficiency Syndrome

Acquired Immunodeficiency Syndrome

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Synonyms

Acquired immune deficiency syndrome; AIDS; Immunodeficiency syndrome acquired; Immunologic deficiency syndrome acquired

Definition

AIDS stands for acquired immunodeficiency syndrome. AIDS is a viral disease that destroys the body's ability to fight infection.

Description

AIDS is the final stage of the human immunodeficiency virus (HIV) infection. HIV finds and destroys white blood cells (T cells or CD4 cells) that the immune system needs to fight disease. HIV disease is transmitted through blood or semen and occurs in three major ways: through sexual activity if the body fluids become exposed to each other, in intravenous drug use if contaminated needles are shared, and from an infected mother to her baby. The diagnosis of AIDS is made when an individual is infected by the HIV, has a CD4-positive T-lymphocyte count under 200 cells/microliter or less than 14% of total lymphocytes, and increased susceptibility to opportunistic infections and malignant neoplasms [1].

Opportunistic infections are common in individuals with AIDS, targeting areas that include the brain, intestinal tract, lungs, eyes, and other organs [2]. Additional health complications include debilitating weight loss, diarrhea, neurologic conditions, and chronic illnesses such as diabetes, heart disease, and cancers like Kaposi's sarcoma and certain types of lymphomas [2].

In the absence of treatment, data from large epidemiological studies in Western countries indicate that the median time from infection with HIV to the development of AIDS-related symptoms is approximately 10–12 years [3]. However, there can be a wide variation in disease progression. The most efficacious treatment for HIV/AIDS is with antiretroviral drugs that fall into four major classes: Reverse transcriptase (RT) inhibitors; protease inhibitors; entry and fusion inhibitors; and, integrase inhibitors. Combinations of these drugs also are employed and can significantly reduce the presence of the virus. Specifically, using a combination of antiretroviral medications and protease inhibitors commonly referred to as highly active anti-retroviral therapy (HAART) has been found to be effective in prolonging the lives of children and adolescents with HIV. Currently, drug treatment does not cure HIV infection or AIDS. Retroviral drugs can effectively suppress the virus, even to undetectable levels, but the drugs cannot eliminate HIV from the body.

Medical advances in the prevention of mother-to-child transmission are particularly encouraging given that fewer than 300 children annually are born infected with HIV in the United States [6]. However, there are still more than 8,500 previously infected children and youth less than 19 years old living with HIV or AIDS [6]. In addition, over 50% of all new HIV infections occur in individuals under the age of 25 [4].

Almost all HIV-infected young children in the United States get the virus from their mothers before or during birth when proper prenatal care is not obtained.

Adolescents become behaviorally infected with HIV through either sexual activity or drug use. Similar to adults, the most effective treatment for HIV-positive children and adolescents is antiretroviral therapy. Antiretroviral treatment reduces illness and mortality among children living with HIV in much the same way that it does among adults. In the United States, all infants with HIV are started on treatment, regardless of CD4 percentage, clinical status or viral load [5]. Adolescents that are behaviorally infected are monitored and generally begin antiretroviral treatment when they present with a history of an AIDS-defining illness or with a CD4 T-cell count <350 cells/mm [7].

Relevance to Childhood Development

Over the course of a child's life, HIV infection results in detrimental effects on the development of the central nervous system (CNS), impairs psychosocial functioning, and ultimately reduces life expectancy. The ramifications of these risks to successful development may occur at any age, and often vary with disease progression to AIDS.

Compromised development of the CNS in children with HIV infection may result in cognitive, social, and/or emotional delays that can become apparent at varying points in the child's life. These deficits vary from acute or specific functioning problems to global difficulties affecting multiple areas of neurocognitive functioning [8]. Impaired functioning is often observed in areas that include social emotional regulation, visual-spatial and perceptual organization, expressive and receptive language development, and attention. Deficits in functioning can be caused by static encephalopathy or by deterioration of the attained brain development by repeated severe infections (e.g., toxoplasmosis, cytomegalovirus).

Additionally, rapid declines in neurocognitive functioning and motor delays often indicate the disease progression to AIDS due to either the failure of the current medical treatment or nonadherence. Disease progression can lead to greater neurocognitive decline and symptoms consistent with AIDS-related dementia (e.g., cognitive, motor, and behavioral slowing, progressive memory impairments, apathy, and deficits in frontal lobe functions).

Similar to other life threatening chronic illnesses, children living with AIDS may experience feelings of sadness, hopelessness, and intense fears of death [9]. Additional internalizing and externalizing symptoms experienced by children with AIDS include depressive symptoms, adjustment problems, feelings of isolation, fear of rejection, and posttraumatic stress symptoms [11]. Psychological and social challenges also may be the result of physical differences from their peer groups such as wasting, descended stomachs, small stature, or atopic dermatitis. Children with AIDS experience repeated and painful medical procedures, recurring hospitalizations and medical visits, frequent school absences, and disruptions in daily routines. However, for children with AIDS, these stressors may be further complicated by feelings of shame about the disease and social stigma.

Psychosocial problems can often hinder adherence to medical care and overall disease progression [10]. Adherence is a primary challenge for children with HIV and nonadherence is a predictor of when children will progress to the final stage of HIV infection. Nonadherence has major consequences in this population including increased viral load, development of resistance to the primary medications, and death.

The neurological, psychological, and social issues faced by youth with HIV disease are complex, requiring careful and supportive assessment and intervention that take into account all of the above influences. Having counseling resources available or making referral to mental health professionals is an important component of providing comprehensive care to children and adolescents with HIV or AIDS.

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Acquired Knowledge

►Crystallized Intelligence

ACT

►Acceptance and Commitment Therapy

Action

►Behavior
►Gestures

Active Euthanasia

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Synonyms

Assisted suicide; Mercy-killing

Definition

Active euthanasia occurs when one takes active steps to terminate a patient's life, such as administering a lethal dose of medication.

Description

The term euthanasia is derived from the Greek, literally meaning *good death*; *eu* refers to good and *thanatos* refers to death. Active euthanasia refers specifically to the case in which a person's life is ended through a deliberate act, such as the administration of a lethal dosage of a medication. Three types of active euthanasia have been identified. The most common is voluntary active euthanasia in which the person who has a terminal illness asks another person, often a physician, to perform the deliberate, life-ending act. Non-voluntary euthanasia occurs when a person other than the patient acts on the behalf of the patient and asks a third person to perform the deliberate, life-ending act. Lastly, involuntary euthanasia refers to the circumstance in which the patient's death is hastened by a deliberate act without the patient's consent [1].

Active euthanasia that is carried out by a physician is referred to as physician-assisted suicide (PAS). The U.S. Supreme Court has held that there is no constitutional right to PAS [6]. The Court was willing to let the States, not the federal government, regulate PAS. Oregon is currently the only state in the U.S. to have legalized physician assisted suicide. Oregon's Death with Dignity Act is a comprehensive piece of legislation outlining the steps patients and physicians must follow to end the life of a terminally-ill patient. Between 1998 and 2007, 341 Oregon patients have legally ended their lives with prescribed medication [5].

PAS does occur in other countries. For example, in the Netherlands, terminally ill persons have requested and received PAS. In the Netherlands, PAS is permitted when the physician faces an unresolvable conflict between the law, which makes euthanasia illegal, while also facing the responsibility to help a patient whose terminal illness and suffering makes euthanasia necessary [4].

Relevance to Childhood Development

Although the issues surrounding death and death planning may be thought of as affecting older adults more often than younger adults, death and decisions regarding death planning have relevance to all stages of human development. Children may be born with life-threatening conditions or develop terminal illnesses. Parents of such children can face difficult decisions related to the prolonging of life and/or the hastening of death through medical intervention. It has been estimated that approximately 1 in 33 babies born in the United States each year has a physical deformity [2]. Birth defects are a leading cause of infant mortality [3].

In 2002 in the Netherlands, a procedure was developed for the euthanasia of infants. It has been referred to as the Groningen protocol [7]. It requires that there is a joint decision made by physicians, parents and social workers that further medical treatment would be of no use and then a waiting period of several days. During the waiting period, parents may reconsider the decision. After the euthanasia is performed, the records of the case are

submitted to the prosecutor's office for review. Legal prosecution will not occur if the appropriate protocol has been followed. The Groningen protocol remains controversial; however, with the increase in the use of technology that sustains the lives of fragile newborns, the discussion surrounding the care of critical ill children will, no doubt, continue.

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Active Exploration

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Synonyms

Diversive exploration; Epistemic behavior; Inquisitive behavior; Inspective behavior; Specific exploration

Definition

Exploration refers to the act of gathering information about an environment as result of being curious [1]. The discrepant properties of objects and events arouse curiosity (e.g., in the form of a question), and exploratory responses to satisfy this curiosity expose one to information from the environment that was not previously available [5]. By exploring the environment, new information is acquired and learning ensues. After a child becomes curious about an exciting new computer game, for example, her passive exploration might entail merely observing how a peer plays the game; active exploration would involve actually playing the game to learn its properties. In effect, active exploration of an environment is more likely to result in greater knowledge acquisition than passive exploration [2].

Description

Both animals and humans engage in exploration for the purpose of adapting to environmental contingencies. There are many varying perspectives about exploration, with most embracing the notion that it arises as the result of being curious [1]. Human exploration and exploratory behavior have both motivational and developmental implications that can be useful for guiding educational thinking and practice [4].

Epistemic or knowledge-seeking curiosity results in specific exploration for the answer, for instance, to a child's question. Diversive or experience-seeking curiosity results in diversive exploration of sensory properties, like exploring how it would feel to dive for the first time into a body of ice cold water on a hot summer's day. Specific exploration is motivated by a desire to know a specific answer; diversive exploration is motivated by boredom or a desire to experience a new sensation or experience [1]. Active forms of both types of exploration more likely result in knowledge advances versus more passive forms.

A number of major psychological theories embrace active exploration [3]. Ecological, attachment, psychosocial, and Piagetian theory, among others, each embrace exploration as an integral part of its developmental perspective. The thinking in general is that active exploration is vital for learning, healthy human functioning, and development. In an ecological sense (perceptual learning and development), a child must actively explore to learn about the opportunities for action (affordances) in his environment. Moreover, attachment theorists propose that having a strong emotional bond and therefore a secure attachment with a primary caregiver is essential to active exploration and learning in a toddler's environment. From a psychosocial perspective, identity formation among adolescents is a function of actively exploring to find information about oneself in the context of diverging from parental relationships, and instead making new peer associations and experimenting with new roles in such associations. Finally, Piaget's [4] cognitive theory suggests that active exploration of a child's environment leads to information acquisition, knowledge transformation, and eventual mastery of one's environment. In each of the aforementioned developmental perspectives, active exploration leads to greater learning and more favorable development.

Relevance to Childhood Development

Active exploration is one of the cornerstones of child development [4]. Without sufficient opportunities for actively exploring their worlds, children's cognitive, social and emotional, and even physical development may suffer unnecessarily. Designing learning environments in homes, playgrounds, and schools that motivate active specific and diversive exploratory behavior will promote optimal learning and development [3].

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Active Exploration Without Achieving Identity

►Identity Moratorium

Active Learning

►Self-Regulation

Active Listening

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Synonyms

Attentive listening; Reflective technique of mirroring what is spoken

Definition

Active listening entails the listener's involvement in hearing for intellectual and emotional messages. The listening focus is with what the person is saying, while confirming the accuracy of the content and affect of the message.

Description

Active listening involves the intent to listen for meaning, in which the listener checks-in with the speaker to verify a correct understanding of the presented message. The listener's attention is to the process: what is heard and what is implied.

Active listening involves identifying explicit and implicit patterns of communication. Verbal communications are received and reflected along with the underlying expression of feelings in an attempt to understand or explain a core message. Active listening is a learned skill and effort to avoid misunderstandings by paying close attention to a speaker. Active listening can be facilitated by creating an environment conducive to listening by eliminating distractions and remaining aware of internal, and physical limitations such as fatigue that may interfere with the listening exchange.

Active Listening Techniques

Active listening can be used to express empathy by using questions and the following techniques: encouragement, restatements, reflections, and summaries.

- The encouraging prompts may include nodding or saying "I see" or "tell me more."
- Restating responses may offer feedback in line with "it sounds like you did not do very well on your test" or "you forgot your homework" which can be used to mirror facts that have been shared.
- Reflecting responses such as "you seem to feel that you are," or "what I hear you saying is that you are afraid of school," can be used to capture the essence of the feelings expressed.
- Summary responses pull important ideas and facts together and can be used to establish the basis for further discussion or help with review of prior gains.

Relevance to Childhood Development

Active listening is a skill for recognizing and exploring a child's pattern of communication. Without active communication skills, a child's concerns often go unrecognized. By the age of 5, children are aware of their power in listening and being heard. They may be able to

demonstrate their ability to speak and hear yet still have difficulty listening. This can be observed in the following example: complying with detailed directions. Differences in children's ability to listen are developmental and may include: attention disorders, emotional disturbances, prenatal drug exposure, and language proficiency. Listening can also be influenced by physiological auditory acuity (ability to hear), and auditory perception (ability to discriminate among sounds).

In the classroom, active listening is the process of summarizing and relaying feedback to the student about expressed feelings and identified concerns. In group, inviting the children to restate what they have heard another child say functions as practice in active listening. Other active listening activities may be introduced with pausing in the middle of a story and inviting the children to tell what they think has occurred; giving directions and having the children repeat what they have heard. Equally important is value of giving feedback to encourage the children's active listening skill development.

Relevance to Parent–Teacher Relationships

Early childhood programs that promote communication between parents and teachers can help to build a strong working relationship to support home – program collaboration. These communications help early childhood professionals to better understand the parent's perception and expectations of their child in relationship to the school program.

The goal in active listening is to develop an understanding of the parent's concern and to clearly communicate the listener's interest in the parent's message.

Through the use of active listening skills, educational professionals can gain important information with which to work with.

In sum, active listening has been described as a process, which includes making empathetic comments, asking appropriate questions, paraphrasing and summarizing for the purposes of verification.

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Activities of Daily Living

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Synonyms

Self-care behaviors; To participate in regular activity associated with independent living

Definition

Activities completed on a regular basis that involve self-management (examples include: bathing and dressing). Daily living activities entail the person's involvement in personal care of intellectual, physical, psychological, and social needs.

Description

Activities of daily living include routines integral to self-sufficiency [4]. Evaluations of daily living activities generally involve psychological and/or medical determinations to understand the person's ability to care for self on a day-to-day basis. Focus of daily living activities becomes a consideration in the assessment of adaptability to determine cognitive function and self-sustainability.

Intellectual and Physical Daily Living Activities

Daily living activities are developmental and are influenced by intellectual capacity.

During infancy and early childhood, daily activities are moderated and managed externally by care-givers. As normal child development occurs, greater levels of autonomy result in increased daily activities. By the age of 7, activities are expressed in physical self-care, some which include: bathing, dressing, toilet management, eating, and sleeping. It is at school age that daily living activities become a decision consideration in assessing normal development. Decisions about normal as desirable or acceptable are frequently assessed in the child's fulfillment of one's own personal daily living needs [1].

Psychological and Social Daily Living Activities

Psychological and social daily living activities increase with maturation and instruction. As the child recognizes and explores immediate environments, appropriate patterns of social communication are reinforced adding to the child's daily living activity repertoire. Some of these

basic daily living activities include: eating, dressing, speaking and interacting with others. The child learns culturally appropriate emotional, psychological and social behaviors, for example: smiling at a friend, shaking hands when meeting someone for the first time, and excusing self when leaving the table. For the child who begins failing to exhibit the appropriate daily living activities, concern arises. Without the demonstrated psychological, emotional and social daily living activities, the child is placed in a vulnerable position that may lead to mistreatment by others.

By school age, children are aware of their ability to self-manage. Teachers are active participants in modeling and teaching appropriate daily living activities. Children learn that school activities of daily living involve self-control, and self-management. Classroom examples may include: sitting behaviors or waiting to be recognized before speaking. While interactive play may involve conflict management using appropriate language rather than fighting. The children learn to develop the social skills and self-managed behaviors that assist with personal development [3].

Relevance to Parent–Teacher Relationships

Early childhood programs working with parents in partnership with teachers to prepare the child for school daily (life) activities have an advantage. These communications help the child better understand the core values and importance of daily living activities as they apply to home and the school environment [2].

In sum, activities of daily living can be described as those critical skills that address self-care in a variety of setting. The goal in teaching daily living activities is individual self-sufficiency.

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Acute HIV Infection

►Human Immunodeficiency Virus (HIV)

Acute Leukemia

►Leukemia

Acute Lymphocytic Leukemia (ALL)

►Childhood Leukemia

Acute Myelogenous Leukemia (AML)

►Childhood Leukemia

Acute Promyelocytic Leukemia (APL)

►Childhood Leukemia

Adaptability

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Synonyms

Adaptation; Adaptive; Creativity

Definition

Adaptation is a biological process, which modifies cognitive operations and psychological structures in order to respond to environmental demands and interactions [11]. Additionally, an adaptive person is defined as someone who consistently responds in a positive manner during a stressful situation. An adaptive person's choices and behaviors would not augment the stress. Instead, said choices and behavior would alleviate or at least maintain the original level of stress [1].

Description

Piaget has stated that adaptation is "any modification of an assimilatory scheme or structure by the elements it assimilates" [6]. Adaptation is comprised of two opposing processes: *assimilation* and *accommodation*. *Assimilation* is defined as amalgamation of various external various into "into evolving or completed structures of an organism" [6]. Dichotomously in the operation of *accommodation*, the child will then adapt himself or herself into the specifications of his or her reality. The *plasticity* of said modification exists because assimilation exists in a temporal state. "However much the view of reality is shaped into the form of the child's current form of understanding, there is always an aspect that resists the transformation, in that the assimilating scheme must adapt to the exigencies and particularities of reality" (van Geert, 1998).

Plasticity can be defined as the variability of each individual. Said variability is "an indication of the individual's potential for different levels of functioning or development" [8]. Specifically in the case of psychological and cognitive functioning, plasticity refers to the individual's capability to adapt and be flexible in dealing with various changing environmental factors. It also refers to "an individual's potential (or reserve capacity) to learn new things or increase the level or speed of performance" [8].

There is fluidity in adaptability, where the process of assimilation and accommodation becomes a dynamic process [5]. Piaget defines assimilation as "integration into previous structures" [7]. Despite the integration of new understanding, the structures continue to exist, although, modified by the novel integrations [10]. Accommodation is defined as "any modification produced on assimilation schemata by the influence of the environment" [7]. Piaget views assimilation and accommodation as "functional invariants of life" unchanged as the child develops [10]. "There is no need for them to change, since they only supply the rules for how to accomplish certain tasks independently of what the specific tasks happen to be. The way a mathematician solves a problem really is different from the generalization of the infant. Nevertheless, the difference is not in the processes of assimilation and accommodation but in the schemata or structures used and created in those processes" [10].

Relevance to Childhood Development

In order for adaptation to occur, there must be an accompanying environmental factor. In a face of adversity, having positive adaptation can impact, childhood development specifically sociability, resilience, and social competence. All are interconnected and are integrated in a symbiotic relationship [3].

For example, an aspect of social competence is sociability. Sociability is defined as a "tendency to prefer the presence of others to being alone" [9]. Their definition of sociability is not limited to children's engagement towards strangers but to everyone, such as family members, friends and strangers. They found that shyness is a category of the sociability construct, not a contradictory definition of sociability. Children who are unsociable might not be labeled as shy and vice versa. Children's general sociability can "directly predict the child's tendency to behave prosocially in a given situation. In two observational studies of preschool children, the incidence of children's helping behavior in the classroom was positively correlated with the number of social interactions in which they engaged" [9]. Interestingly enough, even though extraverts offer more "active" help towards others, in comparison to introverts, introverts instead offer a complementary level of "passive" help [9]. Active help was described, as more physical task while an example of a passive help would be offering knowledge in order to help others.

Children who exhibit a high degree of social competence also have a correlating high degree of resilience. Resilience occurred when positive adaptation exists despite the experience of considerable amount of stress and adversity. By definition, it is also "encompasses atypical processes, in that positive adaptation is manifested in life circumstances that usually lead to maladjustment" [3]. Because resilience is a product of two factors, it can never be really measured but instead, its existence can be "indirectly inferred based on evidence of the two subsumed constructs" of positive adaptation and exposure to risky environmental factors [3].

Experiencing a positive adaptation can be best described as an "adaptation that is substantially better than what would be expected given exposure to the risk circumstance being studied. In many studies of resilience across diverse risk circumstances, this has been defined in terms of behaviorally manifested social competence or success at getting stage-salient developmental tasks" [3]. In children who are young, being socially competent can be measured by the security of attachment towards the primary caregiver. Children, who are socially competent or exhibit competence, have secure attachments to their primary caregiver [13]. For older socially competent children their positive functioning can be observed in their positive peer and social relationships and positive academic achievements [4, 12].

In summary, a person who is adaptable or who experiences positive adaptation would be better equipped in several aspects of childhood development. When facing risky or difficult circumstances, a person with a positive adaptation would have a substantially better outcome than those who exhibit maladaptive adaptation. He or she would be more resilient, exhibit higher degree of sociability and would be more socially competent [3].

Discussion

Currently there are several studies researching the various aspects of adaptability in order to provide effective preventive and intervention policies for childhood adversity [2]. The study of the adaptive capability of children is a vast, growing and exciting field of development and further exploration will provide important information about the intricacies of childhood development and its subsequent consequences.

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Adaptation

►Accommodations, Piagetian
►Acculturation
►Adaptability
►Adjustment

Adaptive

►Adaptability

Adaptive Behavior

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Synonyms

Self-care; Self-help skills

Definition

Adaptive behavior can be defined in various ways, the simplest being that it is the performance of daily activities required for personal and social sufficiency [8]. Furthermore, it is how individuals are able to cope with common life demands and how well a person meets the standards of personal independence expected of someone in their particular age group, sociocultural background, and community setting. A persons adaptive functioning could be influenced by a variety of factors, including education, motivation, personality characteristics, social and vocational opportunities [2, p. 40]. For those that may have significant limitations in adaptive behavior, these barriers can easily impact their daily life and affect their ability to respond to a particular situation or to the environment [3].

Description

Adaptive behavior can be difficult to define because it is not independent of intelligence and the number of dimensions associated with adaptive behavior is unknown [8]. The DSM-IV identifies ten areas of adaptive functioning, which include: communication, self-care, home living, social skills, use of community resources, self-direction, academic skills, work, leisure, health and safety [5].

According to Sparrow et al. [8], adaptive behavior is the interaction of personal, cognitive, social, and situational variables. However, there are several important principals that are inherent when using this definition of adaptive behavior. The first is that adaptive behavior is age related, in that it increases and becomes more complex as a person gets older. Second, adaptive behavior is defined by the standards of others. For example, those who live, work, and interact with an individual. Third, adaptive behavior is variable because it can become worse or progress depending on changes in the environment, interventions, or other events. Last, adaptive behavior is defined by typical performance, not ability. It is meant to measure what a person actually does day to day, despite their actual ability to do it [8].

The following is a list of the ten areas of adaptive functioning and their definition, as defined by Harrison and Oakland [4]:

1. Communication: Speech, language, and listening skills needed for communication with other people, including vocabulary, conversation skills, etc.
2. Community use: Skills needed for functioning in the community, including use of community resources, shopping skills, etc.
3. Functional academics: Basic reading, writing, mathematics, and other academic skills needed for daily, independent functioning, including telling time, writing notes and letters, etc.
4. School/home living: Skills needed for basic care of a home, living, school and classroom setting, including cleaning, performing chores, etc.
5. Health and safety: Skills needed for protection of health and to respond to illness and injury, including using medicines, showing caution, etc.
6. Leisure: Skills needed for engaging in and planning leisure and recreational activities, including playing with others, following rules in games, etc.
7. Self-care: Skills needed for personal care including eating, dressing, bathing, toileting, etc.
8. Self-direction: Skills needed for independence, responsibility, and self-control, including starting and completing tasks, keeping a schedule, making choices, etc.
9. Social: Skills needed to interact socially and get along with other people, including having friends, showing and recognizing emotions, assisting others, and using manners.
10. Work: Skills needed for successful functioning and holding a part- or full-time job in a work setting, including completing work tasks, working with supervisors, and following a work schedule.

Relevance to Childhood Development

A child's adaptive functioning will change as the child grows older, and must be considered relative to a child's age. What is expected of a child at age 5 will be quite different from what is expected at age 15. It is therefore very important to maintain a developmental sense of adaptive behavior. Children who have mental retardation are defined as having deficits in their adaptive behavior in at least two areas. Depending on the severity of the mental retardation, adaptive skills can be taught to a child, but may need to be done at a very basic level [5].

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Adaptive Behaviour Scales

►Vineland Adaptive Behavior Scale

Adderall

►Stimulant Medications

Adderall (Amphetamine)

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Definition

A brand name amphetamine used in the treatment of attention deficit hyperactivity disorder.

Description

Adderall is a stimulant drug which contains an amphetamine. It is used to improve attention span and decrease impulsivity. It is available in two different types: Adderall IR (instant release) or Adderall XR (extended release). Generally Adderall XR has only been approved for use in the treatment of attention deficit hyperactivity disorder.

Some of the side effects include: increasing appetite, decreasing appetite, headache, stomachache, trouble sleeping, nervousness, and dizziness. As always, only a doctor can determine if adderall is appropriate for a child to take.

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Adderall/Adderall XR (Mixture with Other Amphetamines)

►Dextroamphetamine (Dexedrine, Dextrostat)

Addiction

►Chemical Dependency

Addictive Drugs

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Synonyms

(Superfluous.)

Definition

A drug which, due to its desired, pleasurable effects, has the ability to cause physical and/or psychological dependence to its user. Via the mechanism of positive reinforcement, addiction can develop.

Description

For a drug to be considered addictive, many different factors, both physical and psychological, must be assessed. An educated conclusion can be reached after medical and scientific evaluation, traditionally involving:

1. An assessment of the risk of physical harm: What level of physical harm (if any) is the user placed in, as a result of their use of the drug?

This assessment involves, for example, such varied risks as that of a intravenous drug user contracting dangerous communicable diseases (e.g., HIV, hepatitis C, etc.) through sharing needles; the physical risks of overdose (e.g., severe central nervous system depression); and the relative threshold of how much drug causes an overdose: is a lethal amount of the drug easily obtained, or extremely difficult to obtain? Is a lethal amount 10 pills or 10,000?

2. An assessment of the risk of physical and/or psychological dependence. e.g., What is the likelihood of physical and/or psychological dependence on the drug? Put in other words, does this drug induce feelings of pleasure? If so, how intense are these pleasurable feelings? Is it possible for a habitual user to completely stop their use with no adverse reactions?
3. An assessment of possible social and societal harm. e.g., How does a person's use of this drug affect

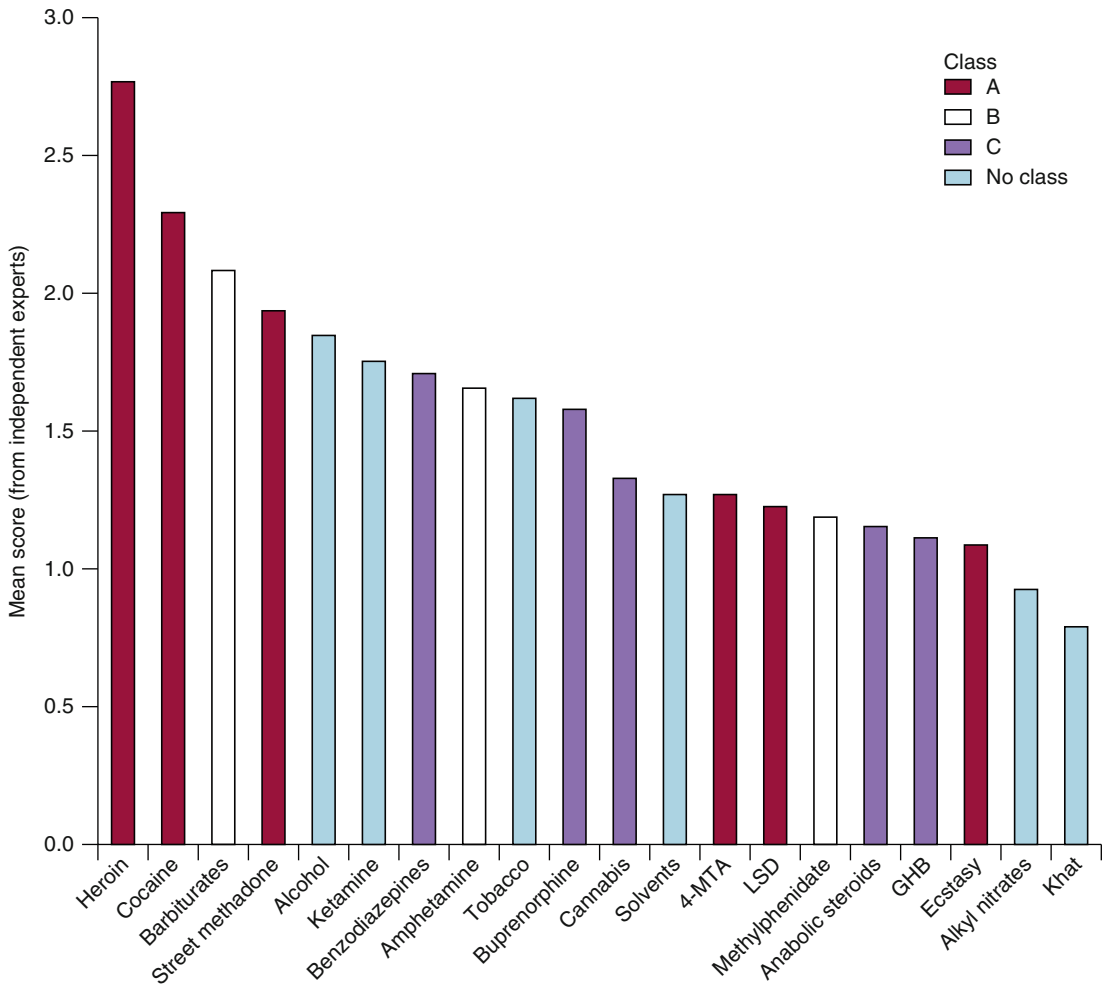
society? Is the highest foreseeable cost to society only a minor nuisance, or a serious and grievous threat to the lives of other members of society? Is it foreseeable that this drug will influence society's health-care costs? If so, will it reduce or raise overall health-related financial expenditures? [1]

[Preceding conditions adapted from Nutt et al.]

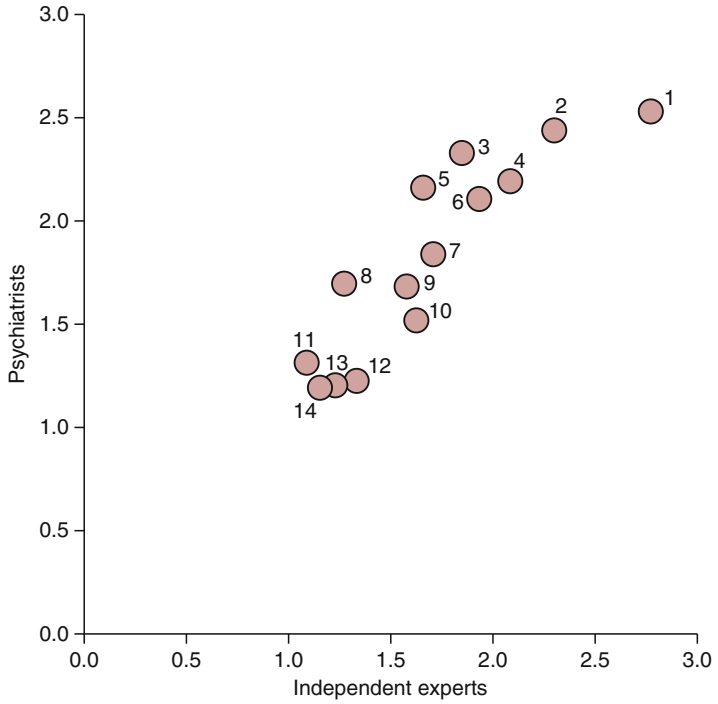
The United States National Institute on Drug Abuse (NIDA) separates "commonly abused drugs" and "drugs of abuse" into the following categories (Figs. 1 and 2):

Alcohol
Nicotine
Cannabinoids, including marijuana and hashish
Depressants, encompassing barbiturates, benzodiazepines, GHB, methaqualone
Dissociative Anesthetics: ketamine, PCP
Hallucinogens: LSD, mescaline, psilocybin
Opioids and Morphine Derivatives: codeine, fentanyl, heroin, morphine, opium, oxycodone (OxyContin), hydrocodone (Vicodin)
Stimulants: amphetamine, cocaine, MDMA ("ecstasy"), methamphetamine, methylphenidate (Ritalin), nicotine
Other: anabolic steroids, dextromethorphan, inhalants [2]

The legality of the use of addictive drugs varies by country, and by specific substance. Efforts to legislate the use of addictive drugs have led to the 1961 United Nations Single Convention on Narcotic Drugs, the creation of the Drug Enforcement Agency (DEA) and declaring a "war on drugs" in the United States. The 1961 convention's



Addictive Drugs. Fig. 1 Mean harm scores for 20 substances. Classification under the Misuse of Drugs Act, where appropriate, is shown by the *color* of each bar. (From [1].)



Addictive Drugs. Fig. 2 Correlation between main scores from the independent experts and the specialist addiction psychiatrists. 1 = heroin, 2 = cocaine, 3 = alcohol, 4 = barbiturates, 5 = amphetamine, 6 = methadone, 7 = benzodiazepines, 8 = solvents, 9 = buprenorphine, 10 = tobacco, 11 = ecstacy, 12 = cannabis, 13 = LSD, 14 = steroids. (From [1].)

preamble stated that its signatory nations are "concerned with the health and welfare of mankind" and are "conscious of their duty to prevent and combat" drug addiction [3].

Especially as of late, there has been a plethora of public discourse on the morality and legality of drug use.

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ADHD Medication

►Stimulant Medications

Adjustment

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Synonyms

Accommodation; Adaptation; Allowance; Alteration; Modification; Piagetian

Definition

Adjustment involves the behavioral process as the person maintains physiological and psychological needs in a response to environmental changes or challenges.

Description

Adjustment involves *the act of making suitable* accommodations in response to a new environment. The act of adjusting connotes adaptation to a particular condition, position or purpose. Implied in its meaning is the act of making it right, to regulate, adapt, or settle. It can be defined as the natural human response to a discrepancy or change in the environment. For instance, consider

a child moving abroad for several years. The challenges the child will encounter throughout the foreign country experience will cause alterations to daily routines and ultimately lead to an ►*adjustment* or accommodation in response to the conditions of that particular country and new environment. This process does not occur rapidly; the child may endure a series of cultural shocks and adjustment phases. These phases include a preliminary stage, initial euphoria, irritability, gradual adjustment, adaptation and biculturalism, an lastly re-entry phase. In considering any new school experience as a condition requiring personal adjustment, the phases of adaptability may proceed as follows.

Preliminary Stage

In the preliminary stage there is excitement and preparation in response to the new challenge. The student prepares for the first day of school. There is a feeling of excitement about beginning a new school year, and setting personal goals. Also facing the student is a sense of uncertainty in response to the new environment. The student will attempt to work out an adjustment either by modifying or changing a position to cope with the new setting. The student may ask for assistance or set up a support system to aid with the transition. In this phase everything is exciting, and the obstacles the student may face have not surfaced. The student may also experience a feeling of fascination and idealism. There are assumptions that are developing; both rational and irrational that may prove to be false with the upcoming change.

Because the student is optimistic, there may be built in negative assumptions that can be detrimental to self-adjustment. The student at this period is not in the classroom environment, and therefore lacks the reality of the experience and any support or motivation the teacher can provide.

Initial Euphoria

In this phase, the reality of the school experience occurs. Anticipations from the previous stage are met with the student's "first day of school" excitement of making new friends, and meeting new people. Unfortunately, as the student becomes more accustomed to school, and things begin to become routine, enthusiasm fades, and the obstacles that were never present before are now prevalent. It is here that if the teacher can execute engaging activities, this phase will last longer, and thus minimize the following phases.

Irritability Stage

The third stage is the most difficult stage. In this stage the student becomes accustomed to the environment, and has adjusted to the new culture that is now becoming more demanding. The student exhibits irritability at having to deal with difficult situations. There no longer is the excitement of new friends, or starting a new school, or even a new phase of life. During this stage, the student begins to make comparisons with previous years' experiences, and sometimes these comparisons can become overwhelming and difficult to deal with. For example, a student may compare how prior teachers allowed them to do things that the current teacher does not allow. Throughout this time, the student becomes irritable with any changes presented. These can be insignificant changes, but can cause the student to become extremely stressed and upset. This stage is the most difficult stage of adjustment because of the comparisons that are made. The changes that face the students make the situation more difficult to accept, because of the student's desire to have things the way they used to be. It is important for students to maintain a positive attitude, and accept the modification(s) as assets instead of hindrances.

Gradual Adjustment

At this point, the student is able to orient and organize self in the school environment. By this time, the student has made new friends, become acquainted with the teacher, and has become aware of any course challenges. The student will be gradually adjusting, and may become aware of the transition. For students who are struggling here to make sense of presented information, it will be important to monitor for a negative attitude toward the obstacles presented. The teacher may consider reaching out to these students before they develop a negative attitude.

Adaptation and Biculturalism

The student is now able to function normally in the new environment. What seemed to be a hardship in the past is now part of the daily routine. School is becoming easier because of the increasing knowledge and ability to apply what has been learned. An important aspect of the student's progress of adjustment is their ability to handle difficult situations. The student generally will no longer let disruptions interfere. It is important for the student to stay active in school, and with the new friendships developed. The confidence level of the student by this time has increased dramatically. The student is no longer fighting challenges to change. Rather the student is more likely to have an optimistic approach to accomplish personalized goals. New insights are being made and the student develops a new perceptive.

Effective Adjustment Phase

The student has completely adjusted to the new culture, and has changed to accommodate a new way of life. The student continues to immerse self in the new (school) culture and is forced to consider deeper cultural issues. This requires self-awareness, study and interaction with the school culture, to ultimately resolve and accept another way of life. Eventually the students begin to respect and enjoy the material being learned, while simultaneously feeling that things are becoming routine and easy. The student is finally comfortable with the new environment, and has reached a new level of maturity.

Relevance to Childhood Development/ Education

There are many ways in which adjustment occurs in childhood and beyond. Facing a new school culture is only one example. It is how the child receives the challenge, and adjusts to it that becomes the largest consideration to the accomplishment of personal goals. Suggested are stages in how the student enters a new classroom, school, or even grade level. Educators should regard the beginning of the school year as a new cultural experience for each student. The suggested phases serve as an insight for the teacher to be able to relate to the students, and overall allow the educator an opportunity to cultivate the best student functioning at their fullest potential. The emotions involved in these adjustment stages can affect the student's performance in school. It is helpful for teachers to understand and find ways to lessen the cultural shock of school in order to attain the highest level of achievement, and to ensure that the students grow in both their acquisition of knowledge and maturity.

Teachers, however, are not the only tools in easing the adjustment (transition) for students. As the students enter new phases of their lives, especially as adolescents, it is not only the culture of school that they have to become acquainted with, but also their own identity and emotional development. Adolescents at the ages of 12–14 are entering a new phase in their lives where they are experiencing new emotions and are in quest for self-identity. Many adolescents are confounded on how best to handle these experiences, causing many to turn to items beyond their maturity level, such as sex, drugs, and other delinquent behaviors. The teacher cannot be the sole initiator of the intervention in the student's lives, and in fact research has proven that quality parent-child relationships can ease the stresses and provide a coping mechanism for adjustment.

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Adjustment Disorder in Children

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Synonyms

Transient situational disturbance

Definition

Adjustment disorder is a diagnosis used to describe emotional and/or behavioral disturbances resulting from exposure to a stressor.

Description

Diagnosis

The Diagnostic and Statistical Manual of Mental Disorders, Second Edition (DSM-II) was the first diagnostic manual to include a diagnosis describing symptoms experienced after exposure to a psychosocial *stressor* [3]. In this version, the diagnosis was termed a *transient situational disturbance*. In the DSM-III, a specific section was created for adjustment disorders which could be classified according to eight different subtypes [4]. After the DSM-III, slight modifications were made, leading to the most recent diagnostic criteria included in the DSM-IV-TR [5].

The DSM-IV-TR defines an adjustment disorder as, "The development of emotional or behavioral symptoms in response to an identifiable stressor(s) occurring within 3 months of the onset of the stressor(s)" (p. 683). According to the diagnostic criteria, an individual's emotional or behavioral difficulties must reach a clinically significant level, as determined by one of two possible factors. The person is responding in either "marked

distress that is in excess of what would be expected from exposure to the stressor" or they are exhibiting "significant impairment in social or occupational (academic) functioning." Additionally, adjustment disorder should not be diagnosed if the symptoms meet criteria for another *Axis I disorder* or if the symptoms are only representing a worsening of a preexisting disorder. This diagnosis should not be used in bereavement situations. Additionally, the symptoms exhibited by the individual should not last for longer than 6 months after the initial stressor occurred or after the consequences of the stressor have ended. The diagnosis of adjustment disorder is unique in that it allows for a focus on the importance of various psychosocial factors and stressors in children's lives [14].

The DSM-IV-TR also provides for the use of several specifiers when making this diagnosis. An adjustment disorder can be described as acute, indicating that the emotional or behavioral disturbance has lasted less than 6 months, or it can be described as chronic. The chronic specifier is used when the emotional or behavioral difficulties last longer than 6 months due to a chronic stressor or a stressor that has lasting consequences. As a requirement of the diagnosis, an individual's symptoms may not last longer than 6 months after the stressor has terminated, meaning that in those instances, another diagnosis must be applied, if warranted.

There are six subtypes of adjustment disorder, chosen based on the most predominant type of symptoms that are displayed. These include: adjustment disorder with depressed mood, with anxiety, with mixed anxiety and depressed mood, with disturbance of conduct, with mixed disturbance of emotions and conduct, and unspecified. Unlike other disorders in the DSM-IV-TR, there are no separate criteria for use with children or adolescents, although some research has found that adolescents are more likely to present with behavioral disturbances. Specifically, one study reported that 77% of adolescents with adjustment disorder presented with behavioral symptoms, in contrast to 25% of adults diagnosed with adjustment disorder [6].

The *International Classification of Diseases*, Tenth Revision (ICD-10) also provides criteria for the diagnosis of adjustment disorder. The ICD-10 diagnostic criteria are very similar to those in the DSM-IV-TR. Specifically, the diagnosis requires that individuals experience "states of subjective distress and emotional disturbance, usually interfering with social functioning and performance, and arising in the period of adaptation to a significant life change or to the consequences of a stressful life event" (p. 121). The manual states that symptoms usually begin within 1 month after the stressor occurs and generally do not last longer than 6 months, except when classified as a prolonged depressive reaction. The diagnosis can be specified as a brief depressive reaction (lasting 1 month or less), a prolonged depressive reaction (lasting up to 2 years), a mixed anxiety and depressive reaction, with predominant disturbance of other emotions, with mixed disturbance of emotions and conduct, and with other specified predominant symptoms [17].

Several authors have described problems associated with the diagnosis of adjustment disorder. These include questionable reliability of the diagnosis and the use of this diagnosis as a way to minimize the stigma associated with mental disorders.

The reliability of the diagnosis of adjustment disorder can be impacted by the fact that there is no specific set level of symptoms required in order to diagnose adjustment disorder or to select the specific subtype of adjustment disorder. Therefore, clinicians are relying heavily on clinical judgment [13, 16]. Authors have recommended that the requirements of the diagnosis be made more stringent in the DSM-V, such as requiring a certain number of criteria to be met, similar to other diagnoses [14]. Reliability can also be impacted by difficulties with the time frames that are required for diagnosis, in that it may be difficult to pinpoint exactly when a stressor began and when it ended [14]. It also can be difficult to distinguish between a "normal" reaction to a stressor versus a "maladaptive" reaction [8].

The diagnosis of adjustment disorder can be problematic when used as a way to avoid the stigma associated with a more severe diagnosis or as a way to avoid more serious diagnoses in children. When clinicians use the diagnosis like this, they may be avoiding the application of a more valid diagnosis, which would impact treatment decisions [12, 16].

Two studies have examined the diagnosis of adjustment disorder in children. One study examined the criterion and predictive validity of the diagnosis of adjustment disorder in a population of 92 children who had recently been diagnosed with acute onset insulin-dependent diabetes mellitus. In terms of the criterion validity, the requirement that the distress develop within 3 months of the stressor was consistent with the experience of 94% of the children. The requirement that the emotional or behavioral disturbance can only last 6 months was relatively consistent with the experience in this population. The average episode of disturbance was 3 months, and 85% of the children's symptoms had resolved after 6 months. In follow up, it was discovered that children who had developed an adjustment

disorder as a result of this stressor were 3.4 times more likely to develop a new psychiatric disorder over the next 5 years [11].

Another study examined the characteristics of adjustment disorder in a group of clinically referred 8–13 year old children diagnosed with this classification. The children were followed over time and it was discovered that during the follow-up period of several years, 29 out of 30 of them recovered. The average length of time the adjustment disorder lasted was 8.87 months, ranging from 2.7 to 24.2 months. Specifically, after 6 months from the onset, 38% of the participants no longer met criteria, and by 12 months, 76% had recovered. When examining other relevant factors, it was found that children who were older when the adjustment disorder began recovered from the diagnosis significantly faster. To examine the predictive validity of the diagnosis, subjects were followed for an average of 7–8 years. There was no indication that the previous diagnosis of adjustment disorder contributed to a decrease in "well time" during the time of the study or to the likelihood of the participants developing new disorders. The results of this study suggest that the diagnosis of adjustment disorder has clinical value and has a good prognosis in children. One implication of this study is that the criteria of adjustment disorder that requires symptoms to dissipate within 6 months may be problematic [10].

Epidemiology

In clinical populations, prevalence estimates of adjustment disorder in children and adolescents have ranged from 6.8 to 42% [12]. Although there is a wide range in the prevalence of this disorder in clinically referred children, it is clear that it is a disorder which is seen frequently in clinical populations.

Unfortunately, not much prevalence information exists regarding the occurrence of adjustment disorder in the general population, especially among children. The large epidemiological studies that have been done in the United States, such as the Epidemiologic Catchment Area study or the U.S. National Comorbidity Study, have not included adjustment disorder among the diagnoses being screened for. One large scale study was done to examine the frequencies of various psychiatric disorders among 5,813 children who were 8–9 years old and living in Finland [2]. Adjustment disorder was diagnosed in 6.8% of these children based on their responses on three screening instruments completed by the child, a teacher, and a parent. Adjustment disorder was diagnosed in 7.7% of the 435 children who completed the second stage of the study, which involved a semi-structured parent interview. The subtype of mixed disturbance of emotions and conduct was the most frequently diagnosed subtype.

Another study examining 386 children living in Puerto Rico found that when children scoring in the mild to moderate range of impairment in academic and social functioning were included, the rate of adjustment disorder was 7.6%. When only those children with severe impairments in functioning were counted, the prevalence rate was found to be 4.2% [7].

Assessment of Adjustment Disorder

The assessment of adjustment disorder is complicated by the fact that there are not specific criteria regarding symptoms expression that are required to make a diagnosis. Since a child could have been exposed to any number of different life stressors to qualify for this diagnosis, the way in which a child is presenting may vary quite a lot. Many different factors can impact how a child responds to a stressor, including the child's cognitive and psychological development, ability to use adaptive defense mechanisms, self-esteem, self-perception of competence, and physiological factors [14]. Several authors provide recommendations for clinicians assessing for adjustment disorder. These include a thorough clinical interview as well as the use of standardized checklists.

A clinical interview conducted with both the child and the parent is a requirement of an effective assessment and an accurate diagnosis of an adjustment disorder. Authors suggest that during an assessment several areas of information be obtained. These include the relationship between the stressor and the current symptoms (i.e., specifically examining the temporal relationship and the symptoms that the child is exhibiting) [9, 13]. It will also help to determine the impact of the stressor on the child's functioning or the presence of a reaction in "marked excess" of that which would be expected [13]. In addition, an effort should be made to understand how the child perceives the stressor, the parents' attitudes about the stressor, and any psychopathology evident in the parents. It will be important for the clinician to assess how the child and parents have coped with stressful events in the past, as well as how they are coping with the current stressor [9].

In addition to the clinical interview, assessment measures may be used. Authors suggest the use of various behavioral checklists including the Child Behavior Checklist, Youth Self-Report, the Children's Depression Inventory, the Revised Children's Manifest Anxiety Scale, the Adjustment Scales for Children and Adolescents, and the Children's Global Assessment Scale (C-GAS) [9, 13].

These are all tools which can assess how the symptoms that are being exhibited by the child compare to behaviors typically exhibited by children their age.

When assessing for adjustment disorder, it is important to differentially diagnose between adjustment disorder and other disorders which may occur following a stressor, or may present with similar symptoms [13, 14]. It is important to differentiate between adjustment disorder and depressive disorders, anxiety disorders, disruptive behavior disorders, *Post-Traumatic Stress Disorder*, and a psychological factor affecting a physical condition [13]. It is also important to keep in mind that adjustment disorder is only used when the criteria for another specific disorder are not met. Therefore, if criteria are met for another disorder, that diagnosis should be given.

Treatment

Given the frequency with which the diagnosis of an adjustment disorder is given, it is surprising that so little empirical research exists about effective modes of treatment [1, 9]. When treating a child who has been diagnosed with an adjustment disorder, it appears that treatment needs to focus on: (1) coping with the symptoms that have resulted from the stressor; and (2) teaching the child coping skills that can be used to deal with future stressors and possibly prevent the future development of emotional or behavioral difficulties in response to stressful events.

In the most simplistic of situations, the stressor could be removed from the child's life or the child could be removed from the stressful situation, thereby resulting in a reduction of symptoms [9, 13]. If this type of simplistic intervention is not possible, other treatment options discussed in the literature include individual psychotherapy, family psychotherapy, or pharmacotherapy. Since parents or caregivers will have a significant impact on the way a child perceives, experiences, and copes with a stressor, the family should be involved in the treatment of the child, even if this does not take the form of traditional family therapy [14, 16].

In terms of individual treatment, authors describe several techniques used to treat symptoms of adjustment disorder in children, including relaxation training and cognitive techniques such as increased problem solving abilities and cognitive restructuring. These treatment techniques would be tailored to the types of symptoms present (i.e., anxiety, depression, or externalizing behaviors) [13]. One author recommends that treatment proceed by acknowledging the stressor, reframing problematic behaviors, teaching emotional vocabulary, focusing on coping skills, and correcting any misinterpretations or misperceptions of the stressor [9].

Although there is a lack of empirical research on the treatment of adjustment disorder, one author presented a case study of a *cognitive-behavioral treatment* with a 10-year-old child diagnosed with adjustment disorder. The interventions that she used consisted of psychoeducation, cognitive restructuring, reframing of situations, validation of emotions, problem solving, and homework. Although no quantitative measures were used, at the end of treatment the client's grandmother reported that the problematic behaviors exhibited at the beginning of treatment had ceased. The client was also able to engage in several behaviors for the first time, including going to camp and staying overnight at a friend's house. The client reported feeling happier, and these gains were maintained at a 6 month follow up [1].

When working with the family, it is important that the parents receive education about how to help their child effectively cope with the stressor [13]. This education could also include information about the cognitive and behavioral techniques being used with their child, and how they can encourage the child to engage in these techniques.

Any treatment with psychotropic medications is recommended only when used as a supplemental treatment to psychotherapy [13]. It is possible that some medications may be helpful in treating the symptoms of adjustment disorder; however, there is no substantial research on the use of pharmacology to treat adjustment disorders [14].

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Adler, Alfred

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Life Dates
1870–1937

Synonyms
Life Style

Introduction
Alfred Adler was the first family therapist and the first to do group therapy. Alder established holistic view on a person called Individual psychology, meaning undivided. Adler psychology is the basis of many therapies today.

Alfred Adler was born in Penzing Vienna Austria, February 7, 1870 to parents from Hungry. The family was all musicians at home, and Alfred a tenor, loved to sing attend the opera and the theater. He was the second to the oldest child of six children. Adler's early life he suffered rickets and could not walk until 4 years of age and almost died of pneumonia when a doctor told his family there was no hope for him to live. This statement motivated him to one day become a doctor. Alfred was twice run over by a car on separate occasion, which gave him a fighting spirit. Alfred was a flower lover and felt unhappy because his older brother was favored by his mother and did not feel bonded to her. He was always in completion with is brother and he was able to draw closer to his father with whom he spent much time and saw his father who was a Jewish grain merchant pull himself and his family up through the classes of that time period in Vienna. This brought the family into the Vienna society and was not a part of the Jewish community. Alfred was very friendly and outgoing like his father and felt that mankind was judged by their actions and not by their words alone. Alfred was extremely thoughtful and gained trust by adults and his peers. In school he was faced with a barrier of math and could not resolve it and knew he must try and over come this fear and was able teach himself how to do math.

Educational Information
At age 25 he received his medical degree from the university of Vienna. During that time he met his wife Raissa Timfeyewna Epstein who was a Russian Social activist, and in 1897 they married. Love he felt was a task for two and believed in equal status of women, which in his time was not well accepted. Adler's wife, would become upset because he would not take a political stand and he did not believe in revolution or violence but that better people make better systems. Adler believed in being monogamist and the conflicts of his political beliefs in his marriage was not resolved until a war broke out and his wife was stranded in Russia for 5 months, and she came back from the experience with a different view and never again tried to force the issue of Adler becoming involved in activism again. He never followed or joined in any political groups but followed common sense, fairness, open-mined sane practical ideas. He thought that it was easier to fight for one' principles than to actually live up to them.

They had four children together and he treated all of them equally and his two boys became psychiatrists and his one daughter a scientist and his other an actress.

In the beginning of his career he was an ophanologist and had a firm belief in science. Adler open up his first

general practice in a lower class area of Vienna across from and amusement park and circus where most of his clients were performers. And many of these people remained friends.

There was much political unrest in his country during this time and he was strongly motivated to write and examine personality and became a psychiatrist. Alder in 1907 joined a discussion group with Freud who was 15 years his senior and all went well and, Freud even named him president of Analytic society co-editor of organization newsletter. Adler became very popular and had a great following. Everyone loved him and allowed conversations with all people no matter there class and never tried to make disagreements and if directed to himself he would be truthful in his responses and did not go along with improvable theories. His popularity was growing because he believed that personality problems stemmed from feeling if inferiority deriving from restrictions on the individuals need for self-assertion that maintained people had control of their lives. This went against what Freud's ideas and Adler rejected Freud's theories on sex and he also attacked Freud's ideas over repression. Adler believed that the repression theory should be replaced with the concept of ego-defensive tendencies the neurotic state derived from inferiority feelings and over compensation of the masculine protest, and that Oedipal complexes were insignificant. Freud idea was women had penis envy and Adler's stand was that women where oppressed. Alder abruptly left the Vienna society and formed the Society of Free Analytic Research, renamed the Society of Individual Psychology in 1912 [1].

Adler loved the Café' as a place to chat and express, enjoy social situations with food or drink in a relaxed atmosphere. He was a social being and loved a good joke, humor with a truth injected was his favorite and he lived on humor. He never talked down to people and would talk on their level. No one knew whom his clients were he referred to everyone as his being his friend. Adler had a way of reading people that helped him in his work.

Adler did not delve into any improvable theories and objected to spiritualism, theosophy, astrology and telepathy. These ideas took away our free choice and responsibility and trusted in any real form of religion based on moral principles and thought god was for all people not for a promised few. He also believed in a broken heart and contrite spirit in praying for discretions and thought we all are repentant sinners.

The catastrophe of 1918 also affected the 48-old Adler who was sent to Russian front in the Austrian Army. This time would change his personality from jovial to more of serious in nature. Adler struggled in trying to help young men who were shell shocked (Post Traumatic Stress Disorder) become well enough to go back out to battle field which this tore his heart. He work many long hours with little sleep, and was able to acquire a direct knowledge of war neuroses. He was also called to a work in the hospital with children where he saw the damages of war in the truest form [14].

After the war he began to continue his writing and worked with children in schools and established educational consulting teams in child guidance for the Vienna public school with his ideas to pre-empt the problems in the child by encouraging and promoting social interest and also by avoiding pampering and neglect. This was a time of very little food after the war and a rebuilding was taking place. The advent of the new political regime offered him the possibility of materializing his project. The years 1920–1932 were, in spite of political upheavals, the years of Adler's greatest achievements. A division took place in methods and the Adler published more books and became a professor at Vienna's Pedagogical Institute.

But he did not wait for Hitler to come to power, and immigrated to the United States in 1932. Adler did not know how to speak any English and taught himself by emersion in the language He felt so strongly about his

individual psychology and would prepare his speeches and was able to communicate his messages without any problems because of his passion for his work. Black clouds were gathering over Europe when he suddenly died in 1937 two and one-half years before the catastrophe he had foretold would happen, WW II, and died of a heart attack lecturing tour in Scotland.

Adler influence on psychology would take volumes to write and in summary some of his key points are as follows:

1. That the individual's approach to life is result of early self-training due to his interpretation of his situation. He can change it in later years only if he realizes that his disturbing, conditioned responses are nothing more than inappropriate, inadequate holdovers from childhood. The adult is expected to replace such behavior with more useful responses to be help and not a burden. He should realize it is useless to try to escape the pain he creates for himself in trying to solve adult problems are only situations for which we have not trained ourselves [13].
2. That the problems of behavior, which make us feel and act like inferior second-class passengers in life, are no more than the results of our failure to develop the habit of both emotional and physical self-reliance. We retain from childhood the mistaken expectation that other should "hold up our pants" for us emotionally and physically and be interested in as well as responsible for our welfare.
3. That leaning on others emotionally or physically is a child's way of life. We should not permit this habit to follow us into adult life, since dependency is the root of all feelings of inferiority. Dependency generates the feeling of second-class citizenship. Out of this grows the habit of competition, envy, making comparisons and similar mistaken compensatory strivings we create in our effort to assuage the pain of feeling second class in relation to others. Humiliating feelings of inferiority produce the gnawing, distracting, disruptive, destructive craving for personal recognition and prestige, with its inescapable fear of failure.
4. That unhappiness, loneliness, neurotic symptoms, crime and similar distress arise directly from this unresolved process of learning and depending on others whom we try to control, rule, dominate or exploit for our won benefit, since we cannot otherwise support ourselves physically and emotionally.
5. That only those who are self-reliant emotionally and physically can function as adult human beings able to cooperate with other adults, because life demands that we be useful and productive or as Adler said, to "be a help and not a burden" [17].
6. That the inadequate responses of envy, greed, competition and sabotage-with which we try to solve confronting problems of life-are only reactions which would not arise in the first place if we were in the habit of standing on our own feet and not always trying to find someone on whom to lean and exploit; whom we demand prop us up and hold us there [10].
7. That defects of self-reliance and the inescapable pain that accompanies them can be changed only when we fully realize that the pain we suffer is but the other-end-of-the-stick of our leaning, dependent, subaltern habits of mind. Our problems do not have mysterious, hidden sources in some hypothetical "Id." We do not have to look far or deep to find the source; we keep stumbling, tripping and falling over it all day long, enough though we refuse to identify it as our own childishness [15, 13].
8. That all human beings are the product of evolution, and that we share the inheritance of all human potentialities and are each equally based in evolution. Each can evoke his own reality. Each is his own architect. Whatever one human being has done by others. Creation is a built-in attribute of each of us. It waits, however for the awakening of self-reliance to shape its parts and aspects [3].

View of the Person Holistically

Adler taught that social determinants as goal directedness, or that people are motivated by social forces to achieve certain goals. People are striving for significance, moving forward to fulfill the feeling of belonging [12]. Most people have the need to belong and think they are unique or different [9, p. 16]. This search for significance comes from the feeling of inferiority and is based on our reactions to others. This is the motivational factor as we strive for mastery. Many issues present due to the feeling of inferiority which can create perfectionism, which can become the goal of one's life. Adler stressed that it is self-determination, and our consciousness, that is at the heart of personality, and, that we create our fate by our behaviors and actions. Our choices determine the actions that have purpose and meaning in our lives. In understanding behavior, all actions need to be investigated including the lifestyle development of interactions, experiences and the view one has of the world through living their life [16]. Whatever behaviors are chosen are steps to attain those

goals. Adler calls this approach the movement from "a perceived minus to a perceived plus" [3]. This growth model is used because individuals need to be taught that life has challenges and that there are better ways to handle these "life tasks." Once individuals are provided with a better direction they can change the way they think and replace the negative notions through the encouragement of others.

Holism

Individual psychology was practiced because the term when translated from German to English meant "Holism." The undivided view of a person by their thoughts, feelings, actions, attitudes, and beliefs, uniquely their own by the sum of all parts are united. This holistic approach refers to a person who is part of a larger social system [18].

Environment or Heredity

Adlerians believe that people are not destined because of their environment, or heredity, yet these are the stepping-stones of life. Healthy people can make life what they desire and have the capacity to recognize that the conditions under which they are born is not as important as what they do with life. On occasion conditions can limit what one can accomplish and this then can limit choices. People have a choice in how they react to the way other people behave by either participating or not. The power to change one's own reactions and attitudes gives a person the tools to become master of one's own fate. The key is striving toward perfection yet, not becoming a perfectionist [11]. The role a person plays in their daily life is imparted through the choices they make, like characters in a play.

Germeinschaftsgefühl

The German concept *Germeinschaftsgefühl*, meaning "social interest," refers to a person's attitude in working with other people and the world, humanity within a global future. This attitude is of concern to the happiness and well being of others and the ability ". . .to see with the eyes of another, to hear with the ears of another, to feel with the heart of another" (Ansbacker, 1956, p. 135). Adler [2] wrote how people have a strong need to be accepted and needed in society. One must master three main life tasks: (1) building friendships, (2) establishing intimacy, and (3) contributing to society. Adler affirmed that the degree to which one is successful in working toward concern for the welfare of others is the basis for mental wellness. An individual who willingly demonstrate they have the capacity to give and receive for the benefit of all, understands the key concept of Social Interest. Self-centered behavior goes against the grain and produces the opposite of Social Interest. In group therapy the goal is to increase a person's self-esteem to help them attain social interest [4, 6, 12].

Inferiority and Superiority

Adler believed that most children are born with a degree of inferiority, because of the feelings of helplessness. Inferiority helps us to master our environment by giving one motivation. If the inferiority becomes a problem by restricting our self-worth and growth it can become a negative force. A person moves from the feeling of inferiority to one of superiority as goals are attained in life [5].

Birth Order

The family place or position in which a person is born plays an important part in the development of one's personality. Understanding one's role in the family is important to understanding one's own position regarding relationship with siblings. The family constellation is important to understand how this gives rise to personality characteristics. The child may have characteristics of the parents, yet it is the siblings who the have the most effect on the child's personality. There are specific indicators regarding birth order.

Lifestyle

The individual's family constellation and the family atmosphere promote the lifestyle. The early years, and the reflections of those years in striving for goals, and the formative experiences within the family make up a person's lifestyle. The earliest impressions are the building blocks of lifestyle. How one perceived the experiences becomes personal interpretations of these life events, and is extremely significant. Learning about the experiences of how one interpreted past events can help them to become aware of the patterns that have continued throughout their life. Once an individual is made aware of inaccurate assumptions, changes can then be made. Childhood events create one's personal lifestyle [2].

Contributions

Alfred Adler's career was an example of the social ascension of a man who remained emotionally attached to the lower class of the population and the betterment of all. His idea was "The test of one's behavior pattern: relationship to society, relationship to one's work, relationship to sex" [7].

Several schools dedicated to carrying on the work of Alfred Adler such as The Adler School of Professional Psychology which was founded as The Alfred Adler

Institute of Chicago by Adler's protégé, Rudolf Dreikurs, also, the Alfred Adler Institutes of San Francisco and Northwestern Washington, dedicated to Adler's original teachings and style of psychotherapy. There are also various organizations promoting Dr. Adler's orientation towards mental and social wellbeing. These include ICASSI and the North American Society for Adlerian Psychology (NASAP).

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Adlerian Play Therapy

►Play-Group Therapy

Adolescence

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Synonyms

Teenagers; Teens; Youth

Definition

Adolescence is the life stage that bridges childhood and adulthood. This transitional period is characterized by significant biological, cognitive, and psychosocial changes. Although the age range of adolescence varies by cultural and historical circumstance, the beginning is typically marked by the onset of puberty and the conclusion is associated with the full assumption of adult roles. This means that in the United States and most industrialized countries today adolescence roughly describes the second decade of life.

Description

Adolescence is typically divided into two periods. Early adolescence corresponds with the middle school or junior high school years, and late adolescence corresponds with the latter half of the second decade of life. Early adolescence is characterized by the significant biological changes associated with puberty while late adolescence features identity, career, and relational exploration. There is a growing recognition that college aged young people do not resemble adolescents in terms of their developmental activities. Instead, Arnett and a growing group of others in the field refer to young people between 18 and 25 years of age as emerging adults [2].

Historically, adolescence has been viewed as a time of "storm and stress." Early adolescent researchers believed the adolescent life stage was a time of irrationality, moodiness, and turbulence (see G. Stanley Hall). However, little empirical research supports this negative view. While adolescence is a period of significant change, research finds that most adolescents around the world have a positive self-image, are self-confident and optimistic about their future, are happy most of the time, enjoy life, value work and school, have positive feelings toward their families, and demonstrate the capacity to cope with life's stresses [19]. As a result, most psychologists and practitioners today embrace a more positive view of adolescents, and research increasingly emphasizes their hope, optimism, creativity, and purposes in life [5].

Following is a brief discussion of the biological, cognitive, and psychosocial changes that represent the primary areas of growth associated with normative adolescent development.

Biological Development

The onset of adolescence is marked by the physical changes associated with puberty. According to Marshall [18], puberty is characterized by significant height and weight gain, the development of primary and secondary sex characteristics, changes in body composition, and changes in the circulatory and respiratory systems. The endocrine system, which is responsible for producing, circulating, and regulating hormonal levels, plays an important role in triggering and regulating puberty.

Puberty is associated with the most significant increase in growth since infancy. The release of growth hormones, thyroid hormones, and androgens stimulate the rapid increase in height and weight. At least as noteworthy as the absolute increase in size is the rate of growth during adolescence; nearly half of adult weight is gained during adolescence [22]. At the peak of pubertal change boys grow about 4 in./year and girls about 3½ in./year.

The timing and tempo of puberty are influenced by a combination of highly variable genetic and environmental factors. In the United States boys typically start puberty between 9½ and 13½ years of age, and girls typically experience the onset between 7 and 13 years of age. In boys puberty tends to last between 2 and 5 years, while for girls it typically extends between 1½ and 6 years. Over the past 100 years the average age of the onset of puberty has dropped due to improvements in health, nutrition, and living conditions [1].

As young people undergo puberty they often become preoccupied with their changing bodies (Brausch & Gutierrez, 2009). Throughout puberty, boys tend to develop a more positive self-image as their bodies fill out, their faces take on a more angular appearance, and their voices deepen. Girls, on the other hand, are likely to become less pleased with their changing bodies as they gain weight and fat [4]. Changes in self-image affect the way adolescents perceive themselves and the way others treat them. For example, a young person who has recently gone through puberty may feel older and seek to be treated more like an adult, and other people expect more adult-like behavior from a fully mature adolescent.

Cognitive Development

Along with the rest of the body, the adolescent brain experiences noteworthy physical changes. For example, as a result of synaptic pruning – the process through which unnecessary connections between neurons are eliminated – the brain undergoes considerable restructuring during adolescence. Myelination, or the process in which the neuronal projections that connect to form brain circuits become encased in a fatty substance, facilitates the transmission of impulse flow. The combination of myelination and synaptic pruning allows the brain to process information more quickly and more efficiently [13].

It is not just that adolescent's become more efficient at processing information; they also begin to think and reason in qualitatively different ways. Whereas children tend to think in a concrete and absolute manner, adolescents become increasingly able to engage in thinking and reasoning that is abstract and relative. Deductive (reasoning in which one draws logically necessary conclusions from a general set of premises), and inductive reasoning (in which one draws a general conclusion from a set of specific facts) emerge, and adolescents develop the ability to engage in metacognition, or thinking about thinking.

Several scholars, including Piaget and Vygotsky, have offered theories that describe the process of cognitive development during adolescence. Piaget's cognitive developmental theory situates most adolescents in the formal operational stage, which is characterized by the development of abstract, propositional, and hypothetical-deductive reasoning. Idealism and possibilities are the hallmark of formal operational thought. At the same time as Piaget was devising his theory of cognitive development, Vygotsky was engaged in the same task. However, he came to a somewhat different conclusion regarding the nature of cognition. Vygotsky proposed a sociocultural cognitive theory that emphasizes the central role of learning from more skilled others. According to Vygotsky learning is situated in a particular cultural context and collaborative, meaning that social interactions guide development [14].

The more contemporary information processing theory represents a third influential perspective on adolescent cognitive development. Comparing the functioning brain to a computer, this theory emphasizes the way that adolescents manipulate, monitor, and strategize about information in order to make decisions and solve problems [20].

Psychosocial Development

In addition to the biological and cognitive changes that accompany this stage of life, adolescence is also characterized by significant psychosocial development, including growth in the areas of identity, gender, sexuality, morality, and intimacy. According to Erik Erikson [10–12], the

establishment of a coherent sense of self, or identity, is the major task of adolescence. Prior to adolescence, children have a scattered, inconsistent conception of who they are, but during adolescence they develop a more unified and enduring picture of who they are and of who they hope to become. For some adolescents, especially minority youth, integrating a sense of ethnic identity into their overall sense of self is an important part of their identity development.

Like ethnicity, gender represents a significant component of an individuals' identity. From birth, boys and girls are socialized to act in gender specific ways. According to the gender intensification hypothesis [15], pressure to behave in sex-appropriate ways may temporarily intensify during early adolescence.

The development of sexuality coincides with the greater understanding of what it means to be male and female. While much attention is given to adolescent problems in the area of sexuality, most adolescents have healthy sexual attitudes and engage in sexual behaviors that are not likely to have long-term, negative consequences [9]. According to a national survey of adolescents, sexual intercourse is rare among early adolescents but common among late adolescents [8]. For instance, in the United States only 22% of girls and 27% of boys report being sexually active at 15, but 76% of girls and 85% of boys say they have had sex by 19 years of age.

Moral development, another important feature of adolescent psychosocial development, encompasses reasoning, behaviors, and feelings regarding standards of right and wrong. According to Kohlberg [16] most adolescents reason about moral matters at the conventional reasoning level, meaning they abide by standards of right and wrong that they view as external to themselves, typically belonging to either their parents or society. While Kohlberg's theory helps explain how adolescents reason about moral issues, it does not explain why adolescents ultimately act in moral or immoral ways. Instead, Bandura [3] social cognitive theory of moral development is useful in explaining how adolescents learn to enact moral behavior. According to this model, young people learn what is right and wrong through observation. Over time, young people internalize the broader society's standards of right and wrong, and self-sanctions keep their actions in line with their beliefs. In other words, adolescents experience a diminished sense of self-worth when their actions contradict their moral sense. Moral identity offers another perspective on moral action. During adolescence some young people develop a sense of moral beliefs or commitments that are central to their sense of who they are [6]. For these youth, acting in ways that violates their moral sense, or moral identity, jeopardizes the integrity of their sense of self [17].

Balancing a growing desire for autonomy with a continued need for connectedness is another important task of adolescence. As young people mature, they begin to crave the independence associated with adulthood. However, at the same time as adolescents seek more autonomy, they also begin to seek more intimacy in their relations with others. Peer and family relationships during adolescents differ from relationships during childhood in they are more likely to be characterized by openness, honesty, self-disclosure, and trust. While family support and connections remain important to adolescents, peer relationships become increasingly significant. In early adolescence, peer relationships tend to feature same sex friendships, but during middle and late adolescence, they often include opposite sex friendships and sexual relationships, too [21].

Identity, morality, gender, sexuality, autonomy, and intimacy are issues that resurface throughout the lifespan. However, because of the biological and cognitive changes associated with adolescence, they are particularly salient issues during this stage in life. It is also important to keep in mind that each of these aspects of development takes place within a variety of contexts including family, peer, school, and cultural contexts that influence adolescent development in important ways. Bronfenbrenner's ecological systems model describes the way an individual's development is simultaneously influenced by and influences the multiple contexts in which it is embedded [7].

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Adolescent and Child Behavior Therapy

►Play-Group Therapy

Adolescent Egocentrism

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Synonyms

Egocentrism; Imaginary audience; Personal fable

Definition

Adolescent egocentrism is generally a heightened preoccupation with the self occurring during adolescence. Specifically, newly developed cognitive abilities give adolescents an exaggerated sense of uniqueness from others and also allows the adolescent to monitor their own thoughts though they do not clearly distinguish their own thinking from the thinking of others.

Description

Egocentrism is generally the tendency to view the world from one's internal point of view with less recognition that others beyond oneself may hold different views, perspectives, and beliefs. Egocentrism is particularly strong during infancy and childhood, though it manifests itself in different ways, while egocentrism to some extent remains throughout adulthood as well. Adolescent egocentrism is defined by the fact that egocentric thought and behavior is heightened in adolescence when compared to typical adulthood, as well as the fact that newly developed cognitive abilities lead to specific manifestations of egocentrism that are distinct to adolescence.

Piaget [3] introduced the concept of egocentrism in childhood through his description of his Cognitive Developmental Theory. Piaget's [3] work for the most part describes the various ways that egocentrism is displayed in infancy and childhood. Piaget explains that infants and young children are unable to differentiate their *self* from the rest of the world in which they exist. Children are also unable to differentiate the possibility that others may view (both literally and figuratively) situations from a perspective other than their own [3]. Piaget also describes the concept that children endow inanimate objects with intention and emotion (known as "child animism") and "...believe that everything gravitates around us" (p. 244). While Piaget describes in detail egocentricity during the developmental periods of infancy and childhood, he gives less attention to egocentricity in adolescence specifically.

Elkind [1, 2] later expounded upon the concept of egocentrism in adolescence in his description of two phenomena he terms the imaginary audience and personal fable. The imaginary audience occurs when the adolescent believes that everyone near them is preoccupied with the adolescent's appearance and/or behavior. Elkind [1] conceptualized the imaginary audience consisting of two parts; the self-critical and the self-admiring. For example, the adolescent may be overly critical of a physical imperfection and views everyone around them as being equally attentive and critical of this imperfection. The opposite is also true in that the characteristics that

adolescents possess during this stage (e.g., loudness, vulgarity) are largely due to the adolescent feeling the need to be the center of attention. This need is driven by the self-admiration an adolescent feels and the belief that everyone around them is also admiring their behavior and appearance. Like other manifestations of egocentrism, the imaginary audience is due to the inability of adolescents to differentiate between the interests of themselves and others [1]. Elkind [2] postulates that the imaginary audience phenomenon declines with age as the adolescent continues to differentiate the self from the rest of the world, thus recognizing that every person has their own preoccupations in life. It should also be noted that there are times throughout an individual's adult life when the imaginary audience can be experienced, though this differs from the adolescent experience because the phenomenon tends to be fleeting and less pervasive in adulthood [2].

Subsequent to the imaginary audience is another form of adolescent egocentrism, which is the personal fable. The personal fable can be defined as a grandiose sense of uniqueness leading to a belief that nothing bad will happen to one personally [1]. The personal fable is established by the failure of the adolescent in differentiating between what is unique to one's self from that which is ordinary to everyone. This exaggerated belief of being "unique" may largely be due to quickly developing cognitive abilities that occur in adolescence. For example, as adolescents begin to realize that they can infer the intentions of others based on subtle nonverbal behavior (part of one's developing social cognition), they falsely believe that they are the only ones with such advanced cognitive abilities. Thus adolescents may believe that they are too important or special to die, get arrested, become pregnant, fail school, etc. [2]. For example, adolescents may engage in risky behaviors such as drinking and driving, believing that this behavior might lead to an accident for others, but that it would not happen to them. Unlike the imaginary audience, the personal fable begins to decrease when the adolescent begins to develop intimate relationships with friends. The participation in intimate relationships by the adolescent helps them understand that their personal thoughts and feelings are not as unique as they original thought [2].

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Adolescent Family Life Act (AFLA)

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Description

The adolescent family life (AFL) demonstration and research program, created in 1981 as Title XX of the Public Health Service Act, supports both demonstration and research grants. Within OPA, the Office of Adolescent Pregnancy Programs (OAPP) is responsible for administering the program. The AFL program is funded at $29.8 million in fiscal year 2008.

The AFL program supports demonstration projects to develop, implement and evaluate program interventions to promote abstinence from sexual activity among adolescents and to provide comprehensive health care, education and social services to pregnant and parenting adolescents. The program supports two basic types of demonstration projects: (1) prevention demonstration projects to develop, test, and use curricula that provide education and activities designed to encourage adolescents to postpone sexual activity until marriage, and (2) care demonstration projects to develop interventions with pregnant and parenting teens, their infants, male partners, and family members in an effort to ameliorate the effects of too-early-childbearing for teen parents, their babies and their families. The AFL program also funds grants to support research on the causes and consequences of adolescent premarital sexual relations, adolescent pregnancy and parenting.

The Title XX funds not only help the teens and families they serve directly, but also provide valuable information and evaluation findings that can serve as a basis for future strategies. Every program that receives AFL grant funds is required to include an independent evaluation component. This ensures that the lessons learned by each community will benefit others in the future.

In addition, to ensure that all AFL project staff at the local level have the necessary skills and training to implement these programs, the AFL program has conducted numerous technical assistance workshops annually since 1998 to train front line care and prevention project staff to provide more comprehensive services to their clients.

In 2007–2008, the AFL program is supporting 67 demonstration projects across the country. These projects consist of 36 abstinence education programs and 31 care programs.

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Adolescent Mothers

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Synonyms

Teen mothers; Teenage mothers

Definition

Adolescent mothers are women between the ages of 11 and 19 who become pregnant and parent their children.

Description

Prevalence

While the birth rate for adolescent mothers in the US has declined over the past decade, the US continues to have the highest level of teenage parenting of any industrial nation, with approximately 900,000 adolescent pregnancies each year [7]. Because adolescent mothers are more likely than older mothers to drop out of high school, to require public assistance, and to have children who are at risk for poor birth outcomes and developmental difficulties, adolescent pregnancy and parenting are considered social problems. Although adolescent mothers and their children tend to have special needs, there is heterogeneity within this population with regard to the outcomes for both parents and children.

Risk Factors

The majority of adolescent pregnancies are unplanned. There are a variety of psychosocial risk factors for adolescent pregnancy. Adolescent girls who become pregnant are likely to be poor, single, and to have a history of negative school experiences [4]. A history of childhood sexual or physical abuse is also a risk factor for early sexual activity and pregnancy [6]; children who have been maltreated may be at greater risk of pregnancy due to a lack of parental supervision or a because of sexualized efforts to obtain closeness with others. Finally, risk factors for becoming an adolescent parent include having been born to an adolescent parent, or being part of a cultural group in which younger parenting is common.

While poverty, abuse and lack of parental supervision are risk factors for early sexual activity, not all sexually active adolescents become parents. In some instances, adolescents who are sexually active become parents because they lack awareness of their access to options, including contraceptives, abortion, or adoption. However, it is the case that even when the pregnancy is unplanned, many adolescent mothers chose parenthood as a defining role for themselves.

There is also a high risk among adolescent mothers that they will become pregnant a second time within a few years of their first pregnancy. This second birth is often intentional, reflecting the adolescent mother's goal to focus on parenthood [1]. A primary risk factor for a second teenage pregnancy is not returning to high school within a few months of having the first child. Ironically, having family support with child care, which is associated with better mother and child outcomes, is also a risk factor for a second pregnancy, as is having a stable relationship with the child's father. Finally, cultural norms for young parenting may also support the trend to have multiple children at a young age [7]. Having multiple children as an adolescent decreases the likelihood of the mother completing high school.

Characteristics of Adolescent Mothers

Adolescent mothers face the same stressors associated with child rearing as do older mothers, as well as some that are specific to being a younger mother. Thus, just as some older mothers do, some adolescent mothers experience postpartum depression, while all must address the daily challenges of parenting.

Many of the characteristics specific to adolescent mothers are related to the risk factors for adolescent parenting; thus, a majority of adolescent mothers are poor, single parents. The typical adolescent mother is likely to have had little, if any, prenatal medical care. She is also less likely than an older mother to have poorer prenatal nutrition and weight gain, and more likely to use alcohol, drugs or tobacco during her pregnancy. As a result, adolescent mothers are more likely than older mothers to experience birth-related problems including infant mortality and to have premature and low birth-weight babies [6]. A majority of adolescent mothers have not completed high school, and are not able to support themselves financially. Consequently, many live with extended family and receive public assistance to support themselves and their children.

Nevertheless, adolescent mothers are diverse in terms of their commitment to parenting, their environmental supports, and, consequently, their personal outcomes and the outcomes of their children. Further, it is unclear whether the negative outcomes associated with adolescent pregnancy and parenting are a function of the age and maturity of the mother, or a result of the adverse environments which put them at risk for the early pregnancy. While both appear to have some impact, controlled

studies point to the greater impact of environment over the age and maturity of the mother; that is, many of the problems noted for adolescent mothers and their children, from negative birth outcomes to ongoing maternal stress and financial needs, can be attributed to the circumstances that created the risk for the adolescent pregnancy rather than the age or maturity of the mother herself [5, 7].

Conversely, adolescent mothers who live under less adverse circumstances tend to have better outcomes. Familial support in particular has been associated with positive outcomes for the adolescent mother, including greater likelihood that the adolescent mother will complete high school and less parental stress, as well as better developmental outcomes for the child [2]. A majority of adolescent mothers live with their parents, the child's grandparents, for several years after giving birth, with grandparents providing housing, financial assistance and childcare [3]. This support can be very beneficial, but obtaining this support requires a complex balance of roles and responsibilities for mother and grandmother. For example, while the adolescent mother needs the instrumental as well as psychological support of her family, she may also want to retain parental authority for decision-making, even though she is not the only one taking care of her child. The grandparent, on the other hand, may make sacrifices in order to meet the needs of their grandchild, and may experience some resentment regarding these sacrifices when her authority is usurped. Thus, the roles of all adults in the household need to be negotiated in order to create supportive rather than conflictual relationships with one another.

The impact of the father of the child on family stress and stability is less clear. In approximately half of all cases the father of the child is also an adolescent, while in the remainder the father may be several years or considerably older than the mother. Regardless of age, men who father children with adolescent parents tend to have low income and education [4]. In most instances, the mother and father of the child do not marry or live together. While instrumental support from the father of the child can reduce stress for the adolescent mother, a continued relationship with the father of the child can also be stressful, and, regardless, that relationship is often not available to the adolescent mother [3, 6].

Interventions for Adolescent Mothers and Their Children

In addition to programs designed to help the adolescent mother once she becomes pregnant, there are many programs nationwide with the objective to reduce adolescent pregnancy. Programs that are more effective at delaying pregnancies focus both on early abstinence and using birth control, as well as helping adolescents develop other interests in their communities.

Interventions to help pregnant and parenting adolescent mothers have been implemented in schools, homes and community centers [7]. School-based programs encourage adolescent mothers to complete high school by providing academic programs which they can utilize while they are pregnant as well as post-partum. These programs address the practical needs of the adolescent mother by providing on-site childcare so that the she can attend classes. In addition, these school programs may provide opportunities to learn about infant development or to discuss concerns and questions about parenting. Programs have been successful in helping adolescent mothers complete their high school education and increase the time to their next pregnancy. Home-based and community-based programs have also been implemented. Home-based programs often focus on helping the adolescent mother with her parenting skills, through instruction and in situ modeling of effective infant–adult interactions. Community-based programs typically provide respite for adolescent mothers by providing childcare while the mothers meet to share concerns specific to adolescent parenting as well as those which can occur for any parent, such as post-partum depression.

Other specialized interventions focus on the prevention of developmental delays and improvement of developmental outcomes for the children of adolescent mothers. Because these children are at greater risk for developmental problems, these programs are designed to assess the child's strengths and weaknesses and to provide early intervention to stimulate language acquisition and the development of cognitive skills and social behavior as needed. In addition, programs may help children indirectly by working with adolescent mothers on their parenting skills. These programs increase the knowledge and reduce the stress of the adolescent mother so that she can address the developmental needs of her child.

Relevance to Childhood Development

Adolescent parenting can affect the continuing development of the mother as well as the development of her child. In western industrial societies, adolescents are not expected to assume adult responsibilities, and are still in process of procuring their education and developing the knowledge and interests, skills necessary to function as an adult. Parenting typically interrupts the educational development of the adolescent; unless adolescent mothers return to high school and obtain a diploma they are at a long-term disadvantage with regard to their ability to

become financially self-sufficient. In addition, younger adolescent mothers experience an interruption in the personal exploration of interests and values that is considered part of "normal" adolescent development [4]. The long-term impact of adolescent parenting on one's psychosocial development is unclear, however, as a majority of adolescent mothers live within limited economic circumstances which could limit their options regardless of whether or not they had children.

While some children born to adolescent mothers develop normally, they are still at greater risk than are children of older mothers to have academic, emotional and behavioral problems. These differences in development are attributed to differences in the commitment of adolescent parents to caring for their children, and to diversity in the resources available to the mother and child in the broader social environment. Maternal age may affect mother–child interactions, as adolescent mothers tend to be less patient and provide less stimulation to their children than do older mothers. However, studies find that many of the developmental problems of children of adolescent parents can be attributed to their social and economic circumstances [7]. Child development is more likely to be on track for adolescent mothers who are committed to parenting and have greater support from other adults.

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Adolescent Offending

►Crime, Adolescence

Adrenalin

►Epinephrine

Adult Attachment Interview (AAI)

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Synonyms

Attachment measures; Attachment patterns; Attachment representations; Attachment styles; Mental models

Definition

The Adult Attachment Interview (AAI) is a method of classifying a current state of mind with respect to attachment in adults.

Description

The AAI is a semi-structured interview, and it is used to categorize adults' state of mind with respect to attachments. These classifications are secure-autonomous (F), dismissing (D), preoccupied (E), and disoriented/ disorganized (U/d). The interview consists of twenty questions focusing on early relationships with parents and the family environment, and takes between 45 and 90 min to administer [4, 6].

The AAI was developed as narrative assessment of an adult's state of mind with respect to attachment figures and reflects patterns of organization of experiences. Some sample questions ask the participant to describe their relationship with one of their parents as young as they can remember, what they did when they would get upset, and how they think their relationship with their parents has affected their adult life. Additionally, participants are encouraged to talk about the feelings of sadness, anger, and loss. This way the interview prompts the description of subjective memories forming an autobiographical narrative [8].

One of the most interesting things about this measure is that in addition to taking the content of the answers into account, the way in which the participant present their story becomes a relevant piece of information. When classifying the interview, the tone of voice, the pauses, the degree to which the participants are self-reflective, and the degree to which they have achieved a coherent interpretation of their lives is taken into account. Additionally, involvement in the narrative, lack of recall, idealization of parents, length, cohesiveness, and coherence of

the arguments are all indicative of state of mind in relationship to attachment [8].

The interview assesses the adult's general orientation and mental model in respect to other attachment figures and intimate relationships throughout life, without giving a specific categorization to the relationship between the participant and a particular parent or person. The classifications take place after extensive analysis of the transcript of the interview giving importance to content and form of the discourse. Grice's [5] four maxims of discourse are guidelines for the coding, and violation in quality (statements supported by evidence), quantity (length and completeness of thought), relation (relevance), and manner (clarity) are recorded. Additionally, the participant's parents or caregivers are scored for the extent to which the rater believes they were loving, rejecting, role-reversing, involved when present, or pressuring. The interview does not claim to be an exact account of the past, but a reflection of the adult's present working models [8].

This measure has been found to be predictive of the quality of attachment between adults and their children. The measure does not correlate with features of adult personality, suggesting that it is actually measuring aspects of the adult life that are highly dependent on experiences with caregivers in the early home environment [2]. Research has also shown that the attachment interview classifications are not related to social adjustment suggesting that the AAI assesses a unique dimension of adults' life that is not better defined as adjustment. Classification in the AAI does not correlate with measures of social desirability, and it appears that subjects are not able to predict what a good AAI answer is. This way, adult's working models seem to be responsible for the biases in the subject's answers [2]. The AAI has shown to be stable across assessments for 4 years, which indicates that it is measuring a construct that is robust, and persists across time [8]. Similarly, the AAI has shown to have good test-retest reliability and inter-rater reliability [1].

AAI Classifications

Adult's Secure/Autonomous State of Mind with Respect to Attachment

The narratives typical of this interview are coherent and consistent, and give ample examples and details to support their description of their parents and relationships. These memories do not always convey ideal parenting and positive feelings, but they express a balanced understanding of the past, fluidity of narrative, and the ability to reflect on early experiences. These adults have secure mental models, can recognize the impact of early relations, and are free to live the present without being impaired by past experiences or worries for the future [8].

Adults Dismissing State of Mind

These interviews, in general, show an overall lack of emotional connections during childhood. This discourse usually lacks details and examples, and the adults in this classification generally insist that they cannot recall specific experiences. The participants fail to support their general ideas about early experiences with evidence, and their responses are generally short. The internal working models of these adults are dismissive, because these adults have developed from a young age adaptive strategies based on the perception of an unreliable world. As a result, they have developed a sense of agency and independence, but a lack of feelings of connection, attunement, and emotional communication [8].

Adult Preoccupied State of Mind

These interviews are categorized by a state of mind that has not solved issues of the past. The past affects the adult's life in the present and prevents him or her from living the present in full. Past fears are expressed in relationships of the present and in worries about the future. These adults have not resolved the question of whether the attachment figure would be available to them. They feel a powerful need for closeness and interrelations, and at the same time, fear of losing these intimate relationships. Relationships in the present are experienced as inconsistent and unreliable and as sources of ambivalent feelings. This discourse is categorized by lack of boundaries between past and present experiences, as the past still has an impact of the present state of the subject, not allowing him or her freedom to experience the present [8].

Adult Unresolved Disorganized State of Mind

These interviews commonly have the underlining theme of lack of resolution of trauma or loss. This discourse is generally categorized by lack of coherence and organization, inability to regulate emotional discussion, disruptive behaviors, shifts in states of mind, and a lack of adaptive strategies. The narrative reflects incomplete processing of past events, usually, as a result of traumatic experiences. These adults typically become confused or disoriented when discussing negative events with parents. In these cases, the mind is impaired by traumatic events from accessing memories and processing these memories in coherent ways. This state of mind is thought to be a result of repeated interactions which a caregiver that was frightening and could not sooth and help regulate

the child's emotions. This categorization is often but not always found among adults whose parents were abusive or suffered from a mental illness [8].

Earned Secure Classification

Researchers had encountered a group of adults that were generally classified as secure even in the face of their descriptions of negative parental care experiences. These adults have the ability to present their story in coherent and congruent ways, and to be emotionally involved as they describe negative memories. In general, these adults are thought to have experience repair of early relationships by finding a secure base in a new relationship such as a caregiver, spouse, teacher, or therapists. They have been able to interpret their life stories in ways that make them tolerable and coherent, achieving resolved states of mind and resilience. This allows them to live the present free from unresolved states related to the past. In general, earned secure adults have rewarding intimate relationships, nevertheless, research points at higher levels of depression in this group compared to the secure autonomous group [7].

Relevance to Childhood Development

The use of the AAI has resulted in a body of knowledge related to the importance of adults' representations of attachment for child development. There is an important association between the classifications in the AAI and the quality of parenting an adult can offer. Research suggests that the way in which a mother recalls her own childhood experiences has a strong association to the quality of her relationship with her children. There seems to exist a transmission of attachment patterns through generations, as the caregivers interaction patterns are internalized in the child and affect his or her behavior as an adult. Interviews of autonomous mothers describe a mother who is free from unresolved experiences and can respond to her children's attachment needs. Dismissing interviews present a mother who is reluctant to admit attachment needs, as her needs have often been rejected, and shows rejection and insensitivity to her infant's needs. Similarly, preoccupied interviews reflect a mother who is still dealing with unresolved concerns about her attachment figures and her need for a secure base. Such mothers are likely to show inconsistent and confused responses to their infants, and still feel the need to be nurtured [8].

Research has shown that the AAI can predict the quality of attachment between the mother and child in the strange situation in 75–80% of the cases, when categorizing into secure and insecure attachments. Additionally, autonomous classification predicts secure attachment, dismissing predicts avoidant, and in many cases, preoccupied predicts ambivalent attachments. Similarly, unresolved-disorganized states predict disorganized attachments in the strange situation. The predictive power of the AAI resides not in the quality of early experiences but in the organization of mental representations of attachment and relationship issues. These mental representations reproduce themselves as the internal working models that infants develop about their caregivers and about themselves [3].

The AAI can enable researchers to learn about the processes that facilitate change in the adult's classifications. This can have an effect on the care that children experience, it could help develop clinical services that improve the quality of the parent-child relationships, and could help interrupt the generational transmission of insecure attachments [3].

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Adult Children of Divorce

▶Sleeper Effect of Divorce

Adult Premature Aging Syndrome

►Werner Syndrome

Adult Progeria

►Werner Syndrome

Advertising

►Media

Affect

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Synonyms

Emotions; Feelings; Mood

Definition

A person's feelings or emotions that can be observed by others based on facial expressions, body language, and tone.

Description

Affect is the display of one's emotions. It is displayed by surface-level behavior and observations such as smiling, laughing, crying, etc. It can be easily influenced by events surrounding the person such as surprises, celebrations, arguing, or violence. Affect should not be confused with mood; affect is a more visible and shorter-term experience of emotion. Affect may be described in many different ways; for example, "flat" (i.e., little or no display of emotion), "labile" (i.e., many changes in mood), "euphoric" (i.e., manic), and "dysphoric" (i.e., down or depressed affect).

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Affect Lability

►Emotional Lability

Affective Aggression

►Hostile Aggression

Affective Disorders

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Synonyms

Mood disorders

Definition

Affective disorders are otherwise known as mood disorders and include a group of emotional, psychological, and behavioral disturbances. These disorders include major depressive disorder, bipolar I and II disorders, schizoaffective disorder, and seasonal affective disorder.

Description

The DSM-IV-TR (2000) defines mood disorders in distinct groups including depressive and bipolar disorders. Major depressive disorder differs from bipolar disorder

because there is no history of manic episodes, which is a defining characteristic of bipolar disorder [4].

In children, symptoms of a major depressive episode are shown through irritable or cranky moods and academic problems. Also, these symptoms are different from everyday irritability or frustration and are often comorbid with other childhood disorders, such as ADHD [4]. Finally, depressive episodes emerge more during adolescence along with the onset of puberty [1, 4].

Symptoms of bipolar disorder in children are displayed through difficulties with mood regulation, and may be associated with antisocial behavior, academic problems, or substance use [4, 9]. 10–15% of adolescents with major depressive episodes may develop bipolar disorder as an adult [4] and bipolar disorder is the 6th leading cause of disability among adolescents worldwide [7].

Schizoaffective disorder is defined as meeting the criteria for schizophrenia and major depressive episodes [4]. The onset of schizophrenia is usually between the late teens and early 30s, but early onset has been recorded [4]. In children, symptoms include delusions, visual hallucinations, disorganized speech, and disorganized behavior [4].

Another affective disorder is seasonal affective disorder (SAD). This disorder is defined as a negative change in mood when the seasons change. Children suffering from this disorder may not be aware of the mood changes; they begin to feel depressed in the fall and these feelings increase throughout the winter [8]. Symptoms include feeling tired and washed out; feeling cranky and irritable; temper tantrums; difficulty concentrating; physical complaints; and increased cravings for junk foods [8].

Assessment and Treatment

One of the most widely used assessments for affective disorder in children is the Kiddie Schedule for Affective Disorders and Schizophrenia for School Age Children (K-SADS) [6]. This interview asks the child about his/her symptoms and doesn't just rely on the parent to explain the child's behavior [9]. However, this tool is not without criticism because it only rates current affective symptoms and other symptoms are rated for their occurrence over a lifetime [2], meaning that some important symptoms may be overlooked.

Finally, treatments for affective disorders among children are not where they should be due to a lack of controlled studies [9]. At this time, cognitive-behavioral therapy and interpersonal therapy have been identified as effective psychosocial treatment approaches for childhood depression [5], and mood stabilizers and atypical antipsychotic medications are considered first-line treatment approaches for bipolar disorder in children [3].

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Affliction

▶Bereavement

African American English

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Synonyms

African American Vernacular English; Black dialect; Black English; Black English Vernacular; Black language; Ebonics

Definition

African-American English (AAE) is the term often used by linguists to define a variety of English spoken by most African-Americans.

Description

AAE has been identified by several idioms in the research literature that are indicative of the socio-political and cultural climate of the time. For example, during the Black power movement in the 1970s, the term Black English or Dialect was often used to describe Black speech. In the nineties, the term Ebonics was used to define the language of some in the African-American community [4]. The thrust of the Ebonics debate in the mainstream media was a by-product of the Oakland School District in California's decision to validate the home language of many of its African American students. The Oakland School District's goals were to increase achievement and to address the media's lack of understanding of the language. The backlash that followed Oakland's decision highlighted the great theoretical divide between bidialectic and bilingualism programs [5].

Geneva Smitherman, in her groundbreaking work in the seventies, defined AAE from a socio-linguistic perspective: "an Africanized form of English reflecting Black America's linguistic-cultural African heritage and the condition of servitude, oppression and life in America" [7, p. 2]. Smitherman further stated that Black speech has two dimensions: language and style. Language refers to the sound and grammatical structure; style refers to the ways in which speakers combine words to communicate meaning in a larger context. AAE may also be defined as "a variety that is used by some African Americans and that has lexical, phonological, and syntactic and semantic patterns that are intertwined with structures in general English" [5, p. 676]. This definition suggests that language production operates on a continuum. At any given time, you may have speakers of AAE at different points on the language continuum. In other words, some may be pure speakers of AAE, others may be bidialectical with proficiency in both, while others may be proficient in Standard American English (SAE) with limited proficiency in AAE [5].

Due to AAE's shared history with SAE, some argue that AAE users engage in a poor version of SAE. However, speakers of AAE do follow a rule-governed pattern. The pronunciation sounds of AAE are very similar to the sounds used in SAE; however, the rules governing the production of sounds have different patterns of distribution [5, 7]. For example, words ending in clusters in SAE do not also end in clusters in AAE; as a result, the final clusters of "st, sk, sp, pt, kt, nd, ld" are often reduced to a single consonant. For instance, the following SAE words "list, desk, wasp and accept" are pronounced in AAE as "lis, des, was, and accep." The omission of the last consonant is not an indication of poor grammar but a rule-governed production. In addition, speakers of AAE tend to do some of the following: pronounce the initial /th/ sound as /d/ (e.g., them = dem; then = den); pronounce the final /th/ sound as /f/ (e.g., south = souf; mouth = mouf); delete the middle and final /r/ (e.g., during = doing; more = mow; star = stah); delete the middle and final /l/ (e.g., help = hep; will = wii); and place primary stress on first syllable and front shifting (e.g., police = PO-lice) [7].

One of the most distinctive and critical features in the structure of AAE is use of the "be" pattern in communicating. This pattern is used to denote a recurring or habitual condition. "Be" is omitted from conversation to describe an action that has happened once. For example, the sentence "The coffee bees cold" means the coffee is cold everyday, versus "the coffee cold" which means that the coffee is cold today. In addition, "be" is often used in conjunction with "do" to convey a recurring behavior expressed in the format of a question (e.g., "do they be playing all day?" which translates as "do they play all day?"). In applying the non-be rule, the AAE speaker communicates with the absence of be before nouns (e.g., he a doctor now), adjectives (e.g., he too tall for me), adverbs (e.g., they shoes right here), prepositional phrases (e.g., my momma in the hospital), and in auxiliary constructions (e.g., they talking about school now) [7].

Speakers of AAE often use "been" to communicate a past action that has recently been completed. The context of the sentence symbols the time past versus the actual amount of time. For example, an AAE speaker may say "she been tardy twice this semester" to suggest that she has been late twice during the semester. In addition, "done" is also used to represent past action that is recently completed (e.g., I done my homework today). The context of the immediate sentence or the entire conversation is used as a time marker. Therefore, AAE speakers do not use the "ed" in past tense or past participle conjunction. Consequently, the same verb format serves for both past tense and past participle (e.g., "the bus pass me up last week" or "the bus pass me up everyday"). Moreover, AAE verbs are not marked for person. Hence, the same verb format serves for both singular and plural nouns. Additionally, AAE speakers tend to use triple and quadruple negatives in their sentence structure (e.g., don't nobody never help me do my homework) and place stresses on the subjects of sentences (e.g., my son, he have a new car). For additional information on AAE structure, the reader is referred to Smitherman's extensive work [7].

AAE and Literacy Development

The association between AAE and early literacy skills is of paramount importance due to the low reading performance of African American students. It was the desire to raise the achievement scores of students in the Oakland School District that prompted the school board to recognize the home language of its students. Based on the examples provided above, it becomes clear how educators may mistake AAE as poor grammar. Recent studies have documented the phonological structure of AAE production in preschool and elementary age students, suggesting that many children enter school speaking some variation of the language [1]. The linear relationship between AAE production and early literacy skills is far more complex than earlier established. In fact, a U-shaped association between preschoolers' use of AAE and their literacy skills was found. The authors found that children who use AAE features more or less frequently in an implicit SAE task (i.e., oral narrative elicitation) demonstrated stronger overall emergent literacy skills than students who produced AAE features moderately. Additionally, in a literacy task which required explicit SAE usage, preschooler used less AAE features in traditional SAE activities. In fact, they appeared to decrease their use of AAE features as the expectations for SAE increased. Hence, even in preschool, students are able to dialect shift between contexts. Moreover, students who produce less AAE features in their speaking demonstrated stronger literacy skills than those students who produced AAE features moderately. Likewise, students who were most prolific and proficient at both languages demonstrated emergent literacy skills [1]. Similar findings were noted in AAE features of middle class elementary age students who were able to code-switch depending on the demands of the activity [6].

In conclusion, students of AAE tend to produce more phonological features at the elementary school level [2]. Phonemic awareness skills are closely aligned with students' ability to read well. As such, programs aimed at increasing the awareness of phonological skills in speakers of AAE need to be attuned to the features of the home language and teach the explicit structure of SAE [3]. Although AAE has been identified as a rule-governed language spoken by many African American children and adults living in low and middle socio-economical environments, educational practitioners continue to struggle with designing language programs to meet these students' needs.

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African American Vernacular English

►African American English
►Ebonics

AFT

►Amniocentesis

Afterbirth

►Placenta

Age Attribution

►Age Bias

Age Bias

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Synonyms

Age attribution; Age prejudice; Ageism; Ageist stereotype; Older worker discrimination

Definition

Age bias is the result of prejudicial, evaluative judgments being made toward an individual or individuals merely because of their age [1]. In general, age bias is negative and directed toward those who are older, although age bias is possible toward those who are younger as well [2].

Description

Age bias occurs when age-related stereotyping and prejudice causes one to treat another person or persons with partiality because of their age [3]. Preconceived notions about age then direct biased actions toward that person within the context of the age group in question. For example, age bias tempered by notions of older adults being incurious, resistant to change, technically outdated, and susceptible to physical ailments, might lead a manager to hire a younger job applicant over an equally qualified older applicant. Likewise, possible preconceptions of younger workers as being lazy, less loyal, harder to satisfy, and more likely to miss work because of having young children might bias a manager's decision to hire. To be clear, however, the research demonstrates that age bias is far more prevalent toward those who are older, female, and a member of the non-dominant culture [3, 4].

Age bias is not simply an abstraction to be argued by scholars; it exists and it is pervasive in western cultures [3]. Such bias exists because one's culture supports it in a number of ways, especially through the use of language [4]. Through words like "old," ageist notions are perpetuated. A quick peek at the dictionary yields terms like worn, no longer in use, discarded, tiresome, and obsolete to name a few. Each term has negative connotations that at least unconsciously support age bias. In addition, humor and jokes propagate age bias because age always has been a form of derogatory humor. Modern television, newspaper, and magazine advertisements are notable too in perpetuating age bias in their systematic avoidance of featuring older adults, except when exploiting negative stereotypes such as deteriorating physical appearance (i.e., female beauty is akin to "looking young" and avoiding wrinkling). Similarly, elderly characters on television shows regularly are marginalized into minor roles, poorly developed as characters, and typically described in stereotypical terms (e.g., fading memory, being comical). Indeed, print and electronic media are powerful language forms that continuously inform and shape culturally-accepted ideas of being "older."

In the workplace, age bias toward older workers is problematic, despite laws being passed to lessen its likelihood [5]. In the US, the Age Discrimination in Employment Act (ADEA) was passed in 1967 to promote the employment of individuals on the basis of ability and not age-related stereotypes, with modest success. ADEA permitted exceptions to certain occupations, such as pilots, fire fighters, police officers, bus drivers, air traffic controllers, and others responsible for public safety. The biggest workplace problem associated with age bias is hiring and promotional practices [5]. Older workers in many industries are defined as being 50 or older, but this varies widely. In the computer industry, for example, 35-year-old programmers are considered "old." For fashion models, being near 30 can be a considerable liability; youthful beauty is what sells in this instance. Of course, older workers can be valued for their positive attributes like experience, knowledge, positive attitude, loyalty, and commitment to quality. Yet, organizational research demonstrates that frequently managers have clearly biased perceptions of older workers as being more resistant to change, technology-phobic, less creative, and less capable of handling stressful situations. In study after study, when equally qualified younger and older workers apply for a job or promotion, the younger worker has been more favored in the majority of cases [5].

To combat age bias, people need to be made aware of its insidiousness, pervasiveness, and possible negative consequences. We must be careful to remember that age bias has mostly negative consequences, even more so for females and non-dominant culture members. Those involved in producing print and electronic media could take a leading role in sensitizing its citizens to the issue of age bias and begin addressing it systematically through promoting more positive, but realistic portrayals of older people. In the workplace, conducting intergenerational training and making age a major part of diversity awareness training would be welcome first steps.

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Age Equivalent

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Synonyms

Age equivalent score; Age score; Developmental norms; Norm-referenced scores; Phylogenetic equivalents; Relative performance indexes

Definition

Age Equivalent is the individual's ability; skill, knowledge, or measurement expressed as the age at which most individuals reach the same level (age norm). The Age Norm is the average score of a particular test completed by children of a given chronological age.

For example, the mental age norm of a 6-year old female is determined by collecting a sample of 6-year old female children's mental abilities, then calculating that average cognitive function as the age norm. This average mental function is the age norm for that group. The cognitive function equivalent of the 6-year-old female will then be compared against this age norm.

Description

Age Equivalents are not only used in intelligence measurement, but also physical development such as physical growth (i.e., height and weight, verbal quantity and quality) and motor skills. There are age equivalents, timetables of development, for both prenatal and throughout childhood.

Some tests which use age equivalents include: WIAT, Oral and Written Language Scales-Written Expression (OWLS WE), Peabody gross motor scale, Mullen Scales of Early Learning for the Assessment of Young Children with Autism Spectrum Disorders, and some early intervention tests. Some tests will use age norms as an additional evaluation tool with standard scores.

Advantages

Age equivalents only report relative standing of different students on the same test and are more intuitively understandable. They give a frame of reference for growth and can provide problem-warning signs.

Disadvantages

Since there is a relationship between maturation and learning, it suggests a timetable. But because individuals are different, they cannot be expected to be in the same place at the same time. Even though two children are the same mental age, they may not both be ready for the same school tasks, such as reading.

Because of comparisons to norms, failing to master developmental tasks as expected may cause unfavorable social judgments and a limited foundation for later tasks. Care should be taken to avoid a negative (self) judgment resulting in feelings of inadequacy.

Age equivalents are ordinal data, which means there are not equal units between scores. The development curves are higher in younger children and plateau with older children and adults. Because of this, there are larger differences between scores of younger as compared to older children. Unless the practitioner understands the difference in the amount of variance, it may cause difficulty with the interpretation; as such, should not be used alone to make decisions.

Standardized tests usually use normative scores, so there is a measurement within an age group. Standard scores provide a more accurate view of an examinee's ability because they are based not only on the mean at a given age level but also on the distribution of scores within the age group. Age equivalents are measured in groups between ages. Age norms are calculated from group scores, not individuals within the group.

Analysis of variance from the mean cannot be calculated with age equivalents. Age norms assume scores are evenly distributed, but there is no way to know how the scores are in actuality clustered. If scores cluster around the top or bottom of the scale it means that change can only be detected in the other direction. This introduces a bias called "ceiling" or "floor" effects. In a ceiling effect, the majority of scores is at or near the maximum possible for the test and is limited by a lack of variability. This presents statistical problems. The test can't measure traits above its ceiling. This violates statistical assumptions and limits reliability results.

Relevance to Childhood Development

Educational Setting

Age equivalents are used to make decisions about intellectual development, academic achievement, and the

discrepancy between them to help identify Learning Disabilities (LD). It also measures comparisons of intellectual ability. IQ is a measure of intelligence calculated by mental age divided by actual age. Even the fact that IQ can change illustrates the problem with analyzing mental age. To minimize this occurrence, it is statistically calculated as a distribution on the bell curve.

Growth and Development

One of the more universally accepted theories is that child development is sequential in nature; that there is often a hierarchy of skills creating milestones or stages. Since all humans go through the same steps, comparisons should be able to be made. Stages are monitored from babyhood on up, observing these steps. The approximate ages at which steps occur are charted on developmental scales. Generally, development is measured in the following areas: fine motor, gross motor, cognitive, self-help, social emotional, and expressive and receptive language. Age equivalents are compared to age norms to determine if development is occurring as expected.

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Age Equivalent Score

►Age Equivalent

Age of Viability

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Synonyms

Fetal survival; Premature infant survival

Definition

The age of viability refers to the period of time when the developing fetus is able to survive outside of its mother's womb.

Description

Generally, the age of viability of a fetus is considered to be between 22 and 26 weeks after conception. Survival of a child born prior to the full gestational age (40 weeks) improves greatly during the third trimester. The survival rates at different times during the age of variability are as follows:

- 21 weeks or less: survival rate is 0%
- 22 weeks; survival rate is 0–10%
- 23 weeks; survival rate is 10–35%
- 24 weeks; survival rate is 40–70%
- 25 weeks; survival rate is 50–80%
- 26 weeks; survival rate is 80–90%
- 27 weeks; survival rate is 90% or more

Neonates born during the age of viability usually need assistance to survive and share some common, but often temporary, disorders. These include seizure disorders, heart defects, blindness, problems controlling body temperature, respiratory difficulties, neurological problems including hemorrhage, among others.

Although some of these issues may persist, the prognosis for the premature children born at the normal weight for their period of gestation is generally better than that of small-for-date children (babies born weighing less than is typical for their gestational age, including children carried full term).

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Age of Youth

►Childhood

Age Prejudice

►Age Bias

Age Score

►Age Equivalent

Age-Equivalent

►Psychological Age

Age-Graded Influences: Cohort

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Synonyms

Generational effects

Definition

The term cohort effects refers to traits, attitudes and/or behaviors shared by individuals growing up under similar sociocultural conditions at a particular point in history.

The term age-graded influences refers to effects on development that tend to occur at approximately the same chronological age in most people, and can be either biological effects (e.g., puberty), or environmental effects (e.g., entering the school system, in many countries).

Description

Cohort/History Graded Effects

The developmental researcher Paul Baltes discusses the concept of history graded effects on development. This term refers to the concept that each generation experiences certain historical events, fads, etc. that have a unique effect on their growth and development that other cohorts do not experience in the same way. These effects are thought to be strongest when a cohort is in adolescence or young adulthood; thus, at some level, making them age-graded as well. One example might be how each generation hones its own musical styles and then tends to cling to the music of its youth throughout life. Imagine the effects, particularly in the short term, that the protest music of the 1960s had on the activism of that generation. Another example might be the effect of Watergate on the generation who came of age at in the 1970s. Their attitude toward government and politicians is typically more cynical than that of previous generations, according to some authors. The concept of history graded effects is that, as each cohort experiences the unique sociocultural forces at play during their adolescence and young adulthood, there are some commonalities in their effects on the growth and development of traits, attitudes and behaviors of that cohort.

Cohort effects have been shown to be significant. Research has shown, for example, that the development of personality in teens was affected as much by cohort-related factors as age-related factors. Similarly, it was found that cohort differences in adult intellectual development were as large as longitudinally-studied age differences.

Cohort Effects in Research

Cohort effects can also be important in the study of development and the study of change with age. The two predominant methods for studying change with age are the cross sectional study and the longitudinal study. Cohort effects can be problematic in both types of research.

In cross-sectional studies, researchers study change with age by, at one general point in time, measuring people of different ages on some trait or behavior of interest. For example, a researcher might wish to study the development of memory with age. To do so she loads her test on a computer in her lab, and does a cross-sectional study, testing a group of 20-year-olds, 30-year-olds, 40-year-olds, and so on by decade up through 80-year-olds. Suppose that the researcher finds that 80-year-olds score significantly

lower on the test than 20-year-olds and, at each progressive age tested, that scores are lower. Can we therefore conclude that memory decreases with age? We cannot; one of the major reasons is cohort effects. For example, today's 20-year-olds have much more computer experience on average than today's 80-year-olds. Therefore the differences we see may be attributable to cohort differences in comfort with the method of testing, and not, in fact, decreases in memory with age. It is also true that today's 20-year-olds typically have more recent and extensive experience with memorizing information, given their more recent experience in a school setting memorizing information and using mneumonic strategies. Although this may make it seem as if the younger cohort is more adept at the memory than the older, it may just represent that they have more recent experience and practice in using strategies to memorize quickly. So, once again, cohort effects may make it appear that age-related differences exist when they may not.

Likewise, in longitudinal studies, cohort effects can be an issue. In longitudinal studies, change across age is examined by testing individuals of a single cohort on a trait or behavior of interest, and then continuing to test that group of individuals over time. In this case, a researcher might give a test for a trait like frugality, and follow the members of his original study, testing them every 5 years throughout their lifetimes. The cohort effect issue in longitudinal studies is that only one cohort is studied. The changes across age with the cohort studies might differ if another cohort were studied. Imagine how changes in baby boomers would be different than those of the Depression generation in terms of that trait of frugality.

Typically, cohort effects in research are dealt with by combining cross-sectional and longitudinal approaches in the same study. One might do a series of cross-sectional studies, or a series of longitudinal studies, for example. These are often referred to as sequential designs.

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Ageism

►Age Bias

Ageist Stereotype

►Age Bias

Agenesis of the Corpus Callosum

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Synonyms

Callosal agenesis

Definition

Agenesis of the corpus callosum (ACC) is a rare congenital defect; it is literally a failure in proper development of the corpus callosum, which is normally the largest commissure or interhemispheric pathway, between the two brain hemispheres of the cerebral cortex. The reported frequency of this condition in the United States is approximately 0.7–5.3% of all births; presumably, the international incidence falls in the same range [5].

ACC may be complete, partial or atypical. In complete ACC, the corpus callosum is totally missing. Such callosal disorders are diagnosed via brain imaging studies such as MRI, CT scan or other technologies [3, 4].

The corpus callosum normally begins to form in the tenth or eleventh week of pregnancy. ACC has no single cause but can be due to genetic factors, prenatal exposure to infectious agents or toxins, among other possible causes; in most cases, the exact cause is unknown. Regardless of the cause, normal formation of the corpus callosum

is disrupted between the fifth and sixteenth week of prenatal development [4].

The symptomology, if any, resulting from ACC varies greatly from one case to another, but includes visual impairments, poor muscle tone and motor coordination, delayed motor milestones, reduced pain perception, and difficulties in chewing and swallowing. Since the emergence of present day brain imaging technologies, it has become known that there are individuals with ACC who do not have any psychological delays or deficits. When psychological symptoms or deficits are apparent, these are either idiosyncratic and or typically difficult to detect in most tasks of everyday life. Subtle difficulties in sensory integration and simultaneous dexterity requiring use of both hands have been observed but distinguishing these from normal inattention or "clumsiness" may be a fine discrimination to make; the individual's IQ is generally normal or in the lower end of what is considered normal [1, 4]. One of the most intriguing aspects of ACC is the lack of symptoms and deficits relative to those observed after ablation of the corpus callosum in a mature brain. Individuals with ACC have been found to have brains with enlargement of what are typically the other minor interhemispheric pathways, namely the anterior and posterior commissures. It is assumed that the enlarged anterior and posterior commissures are a means by which brain or neural plasticity has compensated for the lack of a corpus callosum [1, 2].

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Age-Related Attitudes

►Psychological Age

Age-Related Play Therapy

►Play-Group Therapy

Aggression

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Synonyms

Anger; Antagonism; Assault; Bullying; Hostility; Violence

Definition

Any type of behavior or action that is used to harm or dominate another.

Description

Aggression is part of human nature; therefore, all children must learn to deal with their own aggression and the aggression of others. Even though aggression is an innate component of all human societies, societies vary in degree of acceptance and condemnation of aggressive acts. In addition to variations in societies, individuals vary in their levels of aggression. Great debate surrounds what constitutes aggressive actions. For example, is intention necessary for an act to be considered aggressive? Should the context be accounted for? When does an action change from play to aggression? Aggression is a complex and rather elusive field of study.

Aggression can come in many forms, such as verbal, physical, relational, can be committed by groups or individuals, can be emotional or non-emotional, and can be targeted to a specific person or can be a random act. However, most researchers can agree on the basic distinction between hostile and instrumental aggression. Hostile aggression involves acts that have the goal of hurting others or injuring victims. In contrast, instrumental aggression is acts that are motivated by non-aggressive reason but often harm others as a by-product. The major distinction between hostile and instrumental aggression seems to be intention.

Even with the vague and conflicting definitions of aggression used by researchers, children tend to follow a particular developmental pattern focused on amount, type, causes, and thoughts about aggression. Specifically, the amount of aggression decreases with age. Toddlers use aggression directed at other children about 50% of the time, whereas preschoolers use aggression only about 17% of the time during interactions with other children. Some research does suggest a slight increase in the amount of aggression between ages 9 and 14 years, but this increase is evident in boys only. The gender difference may be due to the expression of aggression. Boys use more overt actions

(e.g., hitting, yelling, pushing), whereas girls use more subtle or covert actions (e.g., exclusion, gossip, name calling).

Another developmental pattern is seen in the type of aggression children use. Given increases in social interactions and language use as children get older, aggression switches from more physical to more verbal actions. Toddlers have limited language skills and have no choice but to express frustration or anger through physical means. However, by middle childhood, children can understand and use language in more complex forms leading to more verbal expression of anger or frustration, such as name-calling, taunting, teasing, joking, and sarcasm. Also, across preschool and middle childhood, instrumental aggression decreases in frequency, whereas hostile aggression remains relatively stable. Change in type of aggression can be attributed to children being able to intentionally use aggressive acts. Rather than aggression being a by-product of actions as is common in younger children, in older children are able to deliberately manipulate aggression toward targets.

Given that social situations change across childhood with children gaining entry into more groups and organized events, the contextual elicitors of aggression also changes with age. For toddlers, aggressive acts are most often directed at playmates and center around possession or lack of possession of toys and play objects. Also, in early childhood, toddlers direct aggressive acts toward parent based on disagreements over daily routine activities like bathing, eating, bedtime, etc. Because children are spending more time in larger group settings like school, older children often use aggression not only for individual gain but for the betterment of the group. For example, children may use aggression to obtain the prime spot on the playground so that the entire group may play together.

The final developmental pattern seen in childhood aggression is due to increased awareness of social situations and interpretation of social events. With age, children are able to better understand their motives and the motives of others. Also, children are able to predict behaviors in social situations and use that knowledge to change social interactions. Older children are better able to take on the perspective of others during social situations and can better anticipate the actions and emotions of others. As a result of children's increased social savvy, aggressive behaviors become more subtle and sophisticated. Older children are now able to control their behaviors and emotional responses to override the impulsive aggressive acts of early childhood and are better able to deliberately plan complex aggressive acts. Intense emotional reactions can still elicit violent behaviors but children are now able to use aggression more effectively to harm others.

Socialization has a large impact on the individual developmental path of aggression. Parental style has been shown to influence aggression in adolescent boys. Specifically, when parents are rejecting or indifferent to their male adolescents, they have little motivation to control hostility. Also, when parents are too permissive and fail to set limits, male adolescents may feel freer to use aggression. Parents may also model the rewards of using aggression. For example, frequent use of physical punishment and repeated demonstration of aggression increases the likelihood of children using aggression as a means to an end. Also, differential rewarding may encourage aggression. Parents of aggressive adolescent males are more likely to punish their sons for aggressive acts directed at parents but rewarded for aggressive acts directed toward peers.

Individual differences in aggression levels are fairly stable across development. Children, who are considered aggressive compared to their peers in toddlerhood, will most likely be considered aggressive compared to their peers in preschool and beyond. Individual differences in aggression are also relatively consistent across situations. Children who are aggressive with peers tend to be aggressive with parents, teachers, and others, as well as across contexts like school and home. However, this does not mean that individual levels of aggression are fixed and cannot be altered. Children can learn the precursors of their aggression and therefore, can learn to control aggressive tendencies. Modeling prosocial actions is another important way to teach children to control their aggression. If children have other more acceptable behavior options, they will be more likely to use positive versus negative actions. Changing children's interpretation of social situations may also help decrease aggression. If children can come to recognize other possible motives for behaviors, they may be able to control their impulsive reactions to potentially threatening social interactions.

Several theories have described possible biological and social determinants of aggression. Freud's instinct theory and Lorenz's ethological theory both characterize aggression as instinctual reactions and therefore an inescapable part of life. For Freud, the death instinct, inborn in every human, was the drive to outwardly destroy property or hurt others. This death instinct builds energy overtime that must be released in socially acceptable ways, via catharsis, or violence is inevitable. According to Lorenz, aggression has adaptive value, like hunger, sexuality, and flight, that ensures the strongest will survive.

Based on learning theories, the Frustration-Aggression Hypothesis and Bandura's Social Learning Theory put

more emphasis on contextual influences on aggression. According to the Frustration-Aggression Hypothesis, aggression is a learned response when faced with frustrating social situations. Children learn that expressing aggression helps to alleviate their frustration when their goals are blocked. Although the link between frustration and aggression makes common sense, research has failed to make a clear and reliable link between frustration and aggression. Being frustrated does not always lead to acting aggressively and aggressive acts are not always caused by being frustrated. Bandura's research explored the link between observing aggression and expression of aggression. Through observational learning, children see the usefulness of aggressive acts for obtaining goals and come to use aggression in similar situations. Bandura's Social Learning Theory is the foundation for the argument that television and other forms of media increase aggression levels. However, a causal link between aggression and media has not been established. Television may increase aggressive behaviors or aggressive tendencies may lead to watching violent television.

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Aggression

►Bullying

Aggressive Behavior Problems

►Temper Tantrums

Aggressive Behaviors

►Conduct Disorder

Agnosia

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Synonyms

Agnosis Primary; Monomodel Visual Amnesia; Visual Amnesia

Definition

Agnosia is a relatively rare neurological disorder which refers to the inability to recognize common objects, persons, sounds, shapes, or smells, even when basic sensory modalities are intact. An individual diagnosed with an agnosia is able to receive sensory input such as vision, hearing, and touch, yet is unable to understand or recognize what they see, hear or feel. Visual and auditory agnosias are the most common identified in the literature. This inability for recognition is not due to issues with alertness, intelligence and language [3].

Background and Overview

Agnosia, as a term to describe this phenomenon, was first introduced in 1891 by Sigmund Freud (1856–1939). Agnosia comes from the Greek word for "not knowing" or loss of knowledge. Agnosia was described by Teuber (1916–1977) as a "normal percept stripped of its meaning." The phenomenon of agnosia is frequently discussed in the literature but is relatively rare. Due to the rarity of the disorder, there is no standard taxonomy for describing it, which complicates the clinical understanding [4]. Most reported cases have been patient-based of single subject design, with no two cases exactly alike. Limitations of patient-based research have been cited by Farah [2] as not being readily available for replication. The inability to accurately classify the disorder has led some skeptics in the past to question whether or not the phenomenon actually exists. Currently there is a broad consensus that the disorder does exist, in part due to advances in neuroimaging. Additionally, there are many types of agnosia identified in the literature [7]. Each specific type of agnosia affects a specific sensory modality in a specific way. The phenomenon can range from an inability to recognize familiar faces (prosopagnosia), to the inability to recognize familiar voices (phonagnosia). Other types of agnosia identified in the literature include autotopagnosia, the inability to identify the parts of one's own body, and color agnosia, the inability to recognize color despite intact color discrimination.

Agnosia is most commonly seen in persons who suffer from a stroke or from dementia. The inability to recognize sensory stimuli can be partial or complete, depending on the extent of the damage to the brain [8]. For example, an individual suffering from a visual agnosia may be able to visually describe the object that they are seeing, yet is unable to recognize what it is or identify it by name. This curious phenomenon is often confined to a singular sensory area, such as vision, hearing, or tactile (touch), but can manifest concurrent with other sensory areas. For example, a person with a visual agnosia would not be able to identify or demonstrate how to use a common object, such as a hammer, even though they can see it and accurately describe it. They would, however, likely be able to identify the hammer by touch or by sound if they heard it banging on wood, as these sensory modalities would not be affected. Individuals can have a spontaneous recovery, or recovery can be slow and incomplete. Others must learn to cope with their strange disability. No specific treatment exists.

Anatomical Clinical

Gerschwind (1965) published a monograph, "Disconnection Syndromes in Animals and Man"; his primary thesis was that certain types of behavioral deficits were caused by disconnections between hemispheres, within a hemisphere, or a combination of both. Gerschwind advanced the concept that an agnosia was the result of disconnecting the posterior speech area from the visual association cortex, and is caused by dysfunction due to brain damage in the parietal, temporal, or occipital lobes [4]. According to Luria [6], visual agnosias are the result of a disturbance of visual perception that develops as a result of lesions of the secondary visual cortex. Agnosia is a symptom of a brain disorder. The term is most often used when the primary sense organ involving sight, touch, or hearing is involved and is not impaired. Knowledge of the neuropathology of agnosia is currently incomplete. However, there is evidence to suggest that bilateral occipital lobe lesions extending deep into the white matter contribute to this disorder. The parietal and temporal lobes of the brain are implicated, as they are involved with storing memories and the association of objects to those memories. Damage may be due to head trauma, stroke, carbon monoxide poising, anoxia, dementia or other neurological disorders.

There are many different subtypes of agnosia described in the literature, but all generally fall under the three main categories; visual agnosia, auditory agnosia, and tactile agnosia.

Visual agnosia is a neurological disorder confined to the visual modality in which the person is unable to recognize familiar objects despite intact visual processes. Lissauer (1890) was the first to suggest that there was a distinction between a deficit in the ability to perceive stimuli consciously and a deficit reflecting an inability to ascribe meaning to what has been perceived, a disorder that he identified as "soul blindness." He identified two broad classifications or categories for visual agnosia, apperceptive agnosia and associative agnosia. Most neuropsychologists continue to use these broad classifications. While there is a distinction between apperception and associative agnosia, the distinction is not always clear [7].

Apperceptive agnosia is identified when object recognition fails, due to impairment in visual perception. Apperceptive agnosia is the inability to visually assemble incoming information through the visual system and to form an image, while other visual functions such as acuity, color vision, and brightness discrimination remain intact. These individuals have obvious difficulty with visual perception and are unable to process features and, as such, are not able to accurately develop a perception of the overall shape of the object. As a result, they have difficulty recognizing, copying, or discriminating between different visual stimuli. Individuals with apperceptive agnosia are unable to copy images accurately. Simply stated, these individuals cannot see objects normally and, as a result, they cannot recognize them. A review of the literature identifies carbon monoxide poisoning as a known cause of apperceptive agnosia. Damage to the brain caused by carbon monoxide poisoning is frequently profuse and is primarily located in the posterior regions of the brain. The posterior regions of the brain are responsible for the analysis, coding, and storage of information. Lesions in the occipito-temporal and occipito-parietal visual association areas have been implicated in the damage of visual shape or general visual space recognition [2, 4, 5, 7].

Simultanagnosia, also known as Balint's syndrome, named after the Hungarian neurologist (1909) is the inability to perceive more than one object at a time. It is a condition where visual images containing multiple objects cannot be interpreted as a whole. Individuals can recognize single objects or details in their visual field, but only one at a time. They cannot make a coherent picture out of the various images within the scene or make whole images out of details. They literally cannot see the forest for the trees. Instead, individuals with simultanagnosia recognize only portions of the visual scene and fail to describe the overall nature of the scene and comprehend its meaning. Individuals capable of seeing only one object at a time are said to have dorsal simultanagnosia. Individuals with ventral simultanagnosia retain the ability to recognize whole objects, but the rate of recognition is impaired. The left inferior temporo-occipital cortex is generally implicated in the

deficit. This phenomenon has been described as an inability to shift visual attention from one point to another [7].

Associative visual agnosia has been used broadly to describe a heterogeneous set of symptoms, but most often refers to an inability to recognize objects, despite evidence that early stage perceptual processing is intact. According to Farah [2], there are three main criteria that identify an associative agnosia. The first criterion is the difficulty of recognizing a variety of objects, as demonstrated by an inability to categorize these objects by semantic grouping or by gesturing to indicate normal functioning of the object. The second criterion is normal recognition of objects through modalities other than vision, for example, by touching the object. The third criterion includes intact visual perception that seems adequate to the task of recognizing the object [3].

Unlike apperceptive agnosia, these individuals can recognize shapes and objects. However, they cannot access memory or knowledge of what the object is. The object is perceived as an object but has no meaning; therefore it cannot be identified. For example, the individual can describe accurately visual scenes and/or various objects, but they fail to recognize them for what they are. They would be able to copy and reproduce images, but are unable to identify them by name. This has led some to believe that there is damage in the language centers of the brain. Bilateral damage of the posterior cerebral arteries has been frequently identified in associative agnosia. In general, damage to the brain is more localized than in apperceptive agnosia. Reported cases in the literature identify that damage to several different areas of the brain may produce the affect of an agnosia. Associative agnosia is more common than apperceptive agnosia [1].

Auditory agnosia is a deficit in auditory recognition confined to the auditory modality, despite intact auditory sensory function. There are non-verbal and verbal forms of auditory agnosia. Non-verbal auditory agnosia is defined as a failure to recognize nonverbal acoustic stimuli, despite adequate hearing. For example, the individual would be unable to recognize familiar sounds such as bells, whistles, horns, or animal sounds. Like a visual agnosia, this is sometimes described as a disconnect syndrome, meaning that the brain cannot connect the sound to the source of the sound. This disorder is associated with right temporal or parietal lesions or bilateral lesions of the auditory association cortex [4, 5].

Verbal forms of auditory agnosia refer to an inability to comprehend language, despite normal hearing capabilities. These individuals are able to copy and write spontaneously and follow written commands, but cannot write dictation. Auditory verbal agnosia is thought to be produced by damage to Wernicke's area in the left primary auditory cortex, or the tracts leading to it. Lesions leading to the corpus callosum are also implicated.

Tactile agnosia, sometimes referred to as astereognosia, is a deficit in object recognition confined to the tactile modality, and occurs as a result of unilateral damage resulting from lesions of the contralateral inferior parietal cortex. Those with a tactile agnosia have difficulty identifying a familiar object, such as a key or safety pin that is placed in the hand on the side of the body opposite the damaged area of the brain. These individuals cannot recognize an item by touching or holding it, but can immediately recognize the object when they look at it. Like visual and auditory agnosias, this too is sometimes considered a disconnect syndrome between the somesthetic perception area of the brain and the knowledge of what an item is [4].

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Agnosis Primary

►Agnosia

Agrammatic Dysphasia

►Expressive Dysphasia

Agraphia

►Childhood Aphasia
►Dysgraphia
►Spelling Disabilities

Aid to Families with Dependent Children (AFDC)

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Description

Aid to Families with Dependent Children (AFDC) was established by the Social Security Act of 1935 as a grant program to enable states to provide cash welfare payments for needy children who had been deprived of parental support or care because their father or mother was absent from the home, incapacitated, deceased, or unemployed. All 50 states, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands operated an AFDC program. States defined "need," set their own benefit levels, established (within federal limitations) income and resource limits, and administered the program or supervised its administration. States were entitled to unlimited federal funds for reimbursement of benefit payments, at "matching" rates that were inversely related to state per capita income. States were required to provide aid to all persons who were in classes eligible under federal law and whose income and resources were within state-set limits.

During the 1990s, the federal government increasingly used its authority under section 1115 of the Social Security Act to waive portions of the federal requirements under AFDC. This allowed states to test such changes as expanded earned income disregards, increased work requirements and stronger sanctions for failure to comply with them, time limits on benefits, and expanded access to transitional benefits such as child care and medical assistance. As a condition of receiving waivers, states were required to conduct rigorous evaluations of the impacts of these changes on the welfare receipt, employment, and earnings of participants.

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) replaced AFDC, AFDC administration, the Job Opportunities and Basic Skills Training (JOBS) program, and the Emergency Assistance (EA) program with a cash welfare block grant called the Temporary Assistance for Needy Families (TANF) program. Key elements of TANF include a lifetime limit of 5 years (60 months) on the amount of time a family with an adult can receive assistance funded with federal funds, increasing work participation rate requirements which states must meet, and broad state flexibility on program design. Spending through the TANF block grant is capped and funded at $16.5 billion per year, slightly above fiscal year 1995 federal expenditures for the four component programs. States must also meet a "maintenance of effort (MOE) requirement" by spending on needy families at least 75% of the amount of state funds used in FY 1994 on these programs (80% if they fail work participation rate requirements).

TANF gives states wide latitude in spending both Federal TANF funds and state MOE funds. Subject to a few restrictions, TANF funds may be used in any way that supports one of the four statutory purposes of TANF: to provide assistance to needy families so that children can be cared for at home; to end the dependence of needy parents on government benefits by promoting job preparation, work and marriage; to prevent and reduce the incidence of out-of-wedlock pregnancies; and to encourage the formation and maintenance of two-parent families.

AIDS

▶Acquired Immunodeficiency Syndrome

Ainsworth's Procedure

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Synonyms

Attachment behaviors; Attachment classifications; Attachment patterns; Attachment theory; Exploration; Internal working models; Separation; Strange situation

Definition

Ainsworth's procedure is a method that assesses the quality of attachment between infant and primary caregiver. This procedure takes place in a laboratory, and categorizes infants into secure (B), insecure-avoidant (A) and insecure-resistant or ambivalent (C). Additionally, a forth classification, disorganized (D) is recognized.

Description

Theoretical Background

Attachment theory was first articulated by John Bowlby, who proposed that an attachment is an affectionate tie

that develops between two people, and endures over time [5]. In this relationship one person is viewed as stronger and smarter and takes the role of caregiver and the second person is viewed as needy of care and nurturance. This relationship is based in the etiology and biology of humans, since it served the role of protection and survival of the human infant. This way the relatively helpless infant has innate qualities based in the genetic programming that prompt him or her to form attachments and the human caregiver has innate qualities that facilitate caring and nurturing.

According to Bowlby [6], the attachment figure fulfills two important functions in the development of the child. The first function is to provide the infant with a secure based from which exploration can take place, and the second function is to provide the guidelines for the internal working models. Sensitive and consistent responses from a caregiver constitute a relationship in which the infant feels safe and confident to explore the world. These early experiences form a pattern in the infant's mind and are internalized as internal working models. The experiences of protection, comfort and opportunities for exploration form internal working models of self as independent, lovable, worthy, and self-reliant. In contrast, when an infant experiences the rejection of his or her needs for comfort and exploration the infant is likely to develop internal working models of the self as less worthy, less lovable, and less self-reliant. This way, a child's daily explorations has the function of testing a hypothesis about his or herself and the child's world. The child's learning to attribute meaning to past, present, and future interactions constitutes the basis for the development of internal working models. Therefore, these models can be described as a group of expectation of self and others generated by the attachment relationship [6].

Attachment Behaviors and the Strange Situation

Attachment behaviors are behaviors that aim to promote attachment and survival, and they consist of seeking and maintaining proximity through crying, following, clinging, approaching, smiling, or calling [1]. These behaviors are activated when infants perceive that their sense of safety or integrity is being compromised. These behavior emerge early in development, and they progressively become more directed towards a specific caregiver, usually the mother. Attachment exists even when the behaviors are not present. Hence, once an attachment has been formed, it is believed to be constant even in the absence of attachment behaviors. This way, attachment is considered to be an organization of the behavioral system [1].

Exploratory behavior is also an important element in the attachment system and serves as a period of learning and adaptation. The human infant can adjust to a wide variety of environmental variation, when a balance between the need of proximity to caregiver and opportunity for exploration of the environment is available. Development takes place through the equilibrium between behaviors that draw the child close to the mother for nurturance and behaviors that draw the child away from the mother for exploration and learning [1].

The Procedure

One of the factors that give this theory empirical validity is the fact that these ideas can be measured objectively and reliably. The interaction between exploratory behaviors and proximity-seeking behaviors has been explored in naturalistic settings, bringing Ainsworth and colleagues to develop the Strange Situation. In this procedure, a shortcut to naturalistic observation is proposed as the Strange Situation observes the infant in a variety of situations that prompt both proximity seeking and exploration. These behaviors will take a long time to be observed as activated naturally in the home environment. The procedure was designed to observe the extent to which the infant can use the mother as a secure base from which to explore an unfamiliar environment. This 20-min laboratory procedure constitutes a snapshot of attachment behaviors. This technique exposes the child to a controlled unfamiliar situation with and without the mother and is very effective at evoking attachment behaviors. The balance of exploration-proximity is observed when interpreting the results, as Ainworth's procedure provides the opportunity to observe how exploratory behavior is affected by both the presence an absence of mother and the presence of a stranger [1].

The procedure consists of eight episodes and was described by Ainsworth as taken place in the following way:

"*Episode 1* (M, B, O). Mother (M), accompanied by an observer (O), carried the baby (B) into the room, and then O left.

Episode 2 (M, B). M put B down in the specified place, then sat quietly in her chair, participating only if B sought her attention. Duration 3 min.

Episode 3 (S, M, B). A stranger (S) entered, sat quietly for 1 min, conversed with M for 1 min, and then gradually approached B, showing him a toy. At the end of the third minute M left the room unobtrusively.

Episode 4 (S, B). If B was happily engaged in play, S was nonparticipant. If he was inactive, she tried to interest

him in the toys. If he was distressed, she tried to distract him or to comfort him. If he could not be comforted, the episode was curtailed, otherwise it lasted 3 min.

Episode 5 (M, B). M entered, paused in the doorway to give B an opportunity to mobilize a spontaneous response to her. S then left unobtrusively. What M did next was not specified, except that she was told that after B was again settled in play with the toys she was to leave again, after pausing to say 'bye-bye.' (Duration of episode undetermined.)

Episode 6 (B alone). The baby was left alone for 3 min, unless he was so distressed that the episode had to be curtailed.

Episode 7 (S, B). S entered and behaved as in episode 4 for 3 min, unless distress prompted curtailment (...).

Episode 8 (*M*, *B*). M returned, S left, and after the reunion had been observed, the situation was terminated" [1, p. 54].

The behaviors displayed by infants in the Strange Situation, are the basis for the coding system, and are identified as proximity and contact-seeking, contact-maintaining, contact and interaction resisting, and searching behaviors. Contact-seeking behaviors are behaviors such as approaching, climbing on, and reaching, contact-maintaining behaviors are behaviors such as holding on or refusing to let go, contact and interaction resisting behaviors are behaviors such as attempts to push away or attempts to get down after being picked up, and searching behaviors consist of the infant searching for the mother in her absence, looking at the door or her chair [1].

The Classifications

Classifications are based on careful observation of the child's attachment behaviors in the different composites of the Strange Situation with special attention to the reunion episode [2]. The securely attached child (classified as B) displays the ability to play and explore happily in the presence of the mother and to feel at ease in the presence of a stranger. Securely attached children become distressed when the mother leaves, but they are easily comforted by her when she returns. Children in the anxious-avoidant category (classified as A) are usually indifferent towards the mother and are more interested in toys than in interactions. Such children might exhibit distress when she leaves and might be comforted by the stranger. However, they generally behave with indifference in her return. The insecure-ambivalent children (classified as C) play in close proximity to the mother and exhibit anxiety in her presence. They become very disturbed when she leaves and are not comforted easily in her return. They hesitate between seeking proximity and avoiding the mother during reunion [2].

The behaviors the children exhibit in the Strange Situation reflect on the internal working models of the self, the caregiver, and the world, and are directly related to past experiences with the caregiver. The securely attached infants have developed internal working models of autonomy, confidence, and reliance. Their behaviors reflect on a caregiver who has been consistently available, and an attachment relationship that has served as a secure base for explorations. Insecurely avoidant infants have developed working models of rejection and indifference, and their behaviors reflect a caregiver who has been consistently unavailable. The relationship does not constitute as a secure base, and the infant has developed coping strategies of indifference. Insecure-ambivalent infants have developed internal working models of uncertainty. Their behaviors reflect on caregivers who have been inconsistent in their availability, have not offered a secure base for the child's exploration, and have limited the child's autonomy. Infants are ambivalent about the ability of the caregivers to offer comfort, and therefore they alternate between proximity seeking and resistance [2].

A fourth category has been found through extensive observations of Strange Situations [8]. This category is described as disorganized attachment (classified as D) and portrays a child that lacks an organized strategy to cope with both separation and reunion. This child looks disoriented and confused at reunion and resorts to a mix of behaviors including freezing and stilling. This classification is rare and is mostly present in clinical populations or abusive parents. It reflects a child who has a perception of the caregiver as the source of fear and instability and as unable to sooth the child's emotions (Siegel, 1999). This child's behavior reflects an incoherent working model, and no possible strategy to solve the paradox between seeking protection and avoiding the feared object, as both the fear and the protection are elicited by the same person (Siegel, 1999).

Distribution of Classifications

The Strange Situation has been used in numerous empirical studies in many parts of the world. Attachment classification observed in many U.S. samples have shown a similar distribution to the one proposed by Ainsworth and her colleagues (1978). About 67% of infants observed in the Strange Situation are securely attached, about 21% are classified as insecure-avoidant, and around 12% are classified insecure-ambivalent (Van IJzendoorn and Bakermans-Kranenburg). Cross-cultural research supports

the idea that the B classification is the mode in all countries. Yet, in some cultures some variations of the distribution has been found. For example, in Western Europe and America the avoidant classification is most common among insecurely attached children. However, in both Japan and Israel, ambivalent attachment has been found to prevail, and avoidant attachment is rare [13].

Controversy

Some controversy evolved around the use of the Strange Situation to measure attachment. A central issue in the controversy is the argument that the Strange Situation does not solely measure attachment styles. The behaviors observed in the Strange Situation could easily reflect children's level of arousal and emotionality, distress, fear, and other dimension of temperament rather than past experiences with the caregiver.

However, research points at the role of past experience and caregiver sensitivity to be better predictors of classification in the Strange Situation. For example, in one study level of child fearfulness was associated with the type of insecure classification, as more fearful children were more likely to be classified as insecure-ambivalent and less fearful children were more likely to be classified as insecure-avoidant. Yet, the history of maternal responsiveness was associated to secure or insecure categorizations (Kochanska and Coy, 2002). Similarly, researchers found that categorizations into easy or difficult temperament were not associated with attachment classification [14]. Likewise, a study has shown that insecure-avoidant children were temperamentally easier than both ambivalent and secure children [12].

Moreover, research found that the level of child distress by itself is not related to any attachment classification, although heightened distress is often associated with insecure patterns. However, the level of distresses influences the strategies children adopt during reunion. For example, children who feel higher levels of distress during separation might react in proximity-seeking behaviors and or conflicted behaviors, corresponding to secure or ambivalent classifications. Children who display low levels of distress typically exhibit indifference and less proximity-seeking behaviors, corresponding to avoidant classifications (Kochanska and Coy, 2002).

In one study, children's observations in their interaction with their mothers and level of distress experience in the separation episode were taken into account (Kochanska and Coy, 2002). Children who have shown more anger in their interactions with their mothers were more likely to exhibit resistant behaviors at reunion, and this was unrelated to the level of distress experienced. Similarly, children who expressed less joy in their interactions with their mothers resisted contact most often, and children whose mothers showed unresponsiveness were more likely to exhibit avoidant responses. This study concluded that the child's specific experiences in the mother-child relationship such as anger and joy and maternal responsiveness, were stronger influences on the children's choice of responses at reunion, than levels of distress (Kochanska and Coy, 2002). This supports the idea that the Strange Situation measures a construct that is strongly related to early experiences with the specific caregiver in the procedure rather then irritability or promptness to distress.

Other Methods of Measuring Attachment in Childhood

Since the Strange Situation was established, many new methods have been developed to observe the quality of attachment. However, the classifications remain similar between methods measuring attachment during infancy and childhood [11]. Some of the most common measures employed are the Q-sort, which is an observer's rating system based on home observations. The Q-sort gives a continuous score on attachment security and does not classify between secure and insecure styles. Additionally, there are some variations to the strange situation such as the Cassidy-Marvin system for 2.5–4.5 year-olds, the Preschool Assessment of Attachment, and the Main-Cassidy system for 5 and 6 year-olds. Each of these measures adheres to the categories established by Ainsworth and her colleagues, yet the behaviors used to measure each category vary with the child's age [11]. Lastly, a popular method is the doll-play procedure in which children are asked to use a doll family to complete a set of standardized attachment related stories. This method has many versions and could be used from the age 3 until 7 [11].

Relevance to Childhood Development

The Strange Situation constitutes a reliable method of observing a complex construct such as infant attachment. The availability of this method has enabled theorists and researchers to measure attachment and learn about its crucial role in child development. Additionally, researchers have gathered information about what constitutes an effective intervention that could improve attachment quality. Finally, extensive research has been generated with attention to implications for social policy.

The Strange Situation has enable scientists to show that security of attachment consistently predicts positive emotional development. Securely attached children in general, display pro-social behaviors, competence with

peers, social skills, and empathy (Lamb et al., 1985). Insecurely attached children display higher rates of hostility, impulsiveness, and negative affect [9]. Additionally, secure attachment has shown to be an important factor in resilience and an early predictor of socio-emotional development in the contexts of cumulative risks (Belsky et al., 2000). Attachment security has also proved to have a central role in resilience. In the other had, attachment insecurity has been found to be make children vulnerable to the adverse contextual circumstances [4].

The Strange Situation has enabled scientists to determined whether interventions aimed at improving attachment are efficient and in what way. Researcher have found that interventions are particularly successful if they start when the child is under 3 years of age, they are only a few sessions long, and have clear behavioral focus [3]. Moreover, since attachment is closely related to the quality of the responses from the caregiver to the infant, interventions aimed at refining the quality of these responses are most effective [3].

Finally, the use of the Strange Situation has given room to research relevant to public policy regarding issues such as child care. Studies using this method have shown that children benefit from policies that encourage quality of care during infancy and the preschool period. As more mothers have joined the workforce, and infants experience larger periods of separation these issues become vital. Large controversies remained unresolved in determining what constitute the ideal care for optimal development of infants and young children (e.g., [10]). Nevertheless, research indicates that whether infants experience maternal care, in home care, or center-based care, the quality of interactions and availability of the caregivers, including appropriate adult-child ratio remain as some of the central indicators of optimal care and of predictors of secure attachments (e.g., [7]).

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Albinism

Derived from the Latin albus meaning white, albinism is a congenital disorder characterized by the complete or partial absence of pigment in the skin, hair and eyes due to the absence or defect in an enzyme involved in a production of melanin. The condition results from inheritance of recessive gene alleles and affects all vertebrates including humans. Albinism is also associated with a number of visual defects such as photophobia, nystagmus, and astigmatism. A lack of skin pigmentation makes an organism with albinism more susceptible to sunburn and skin cancers.

Alcohol

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Synonyms

Depressants; Ethanol; Ethyl alcohol; Grain alcohol

Definition

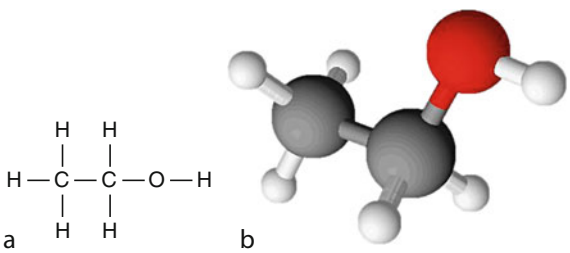
Alcohol is an organic chemical compound that is comprised of an alkyl group (carbon chain) and a hydroxyl group (oxygen–hydrogen bound molecule). More commonly it is used to refer to a class of beverages containing the chemical ethanol, a psychoactive drug that depresses the central nervous system.

Description

The term alcohol can refer to any organic chemical compound that includes one or more aliphatic hydroxyl groups (−OH) attached to an alkyl group (C_nH_{n+1}). While alcohols can exist in many forms, the term alcohol is more commonly used to describe the compound ethyl alcohol (or ethanol, abbreviated EtOH). As its name suggests, ethanol is comprised of an ethyl group (a two-carbon chain) and a hydroxyl group (an oxygen–hydrogen bound molecule), arranged in a straight chain and having the molecular formula C_2H_5OH (Fig. 1). Ethanol is the primary psychoactive ingredient found in most alcoholic beverages, and because of its depressant effects on the central nervous system, it is considered a drug and is regulated in many countries.

Physical Properties of Ethanol

Ethanol is a clear, colorless liquid with a characteristic refined odor. In dilute concentrations it has a sweet taste while in concentrated solutions a burning taste is often observed. It has a density of 0.789 g cm^{-3}, a molar mass of 46.07 g mol^{-1}, and a molar volume of 59 cm^3. It melts at 159 K (−130°C) and boils at 352 K (78°C). It is slightly basic having a pH of 7.33, and is both flammable and volatile [4]. Ethanol is classified as a primary alcohol, meaning that its hydroxyl (−OH) group is attached directly to a carbon atom that has at least two hydrogen atoms attached to it as well. This, combined with its short carbon chain, enhances its miscibility (solubility of one liquid with another to form a homogenous solution) and viscosity (resistance to flow). These properties further enable ethanol to more easily participate in hydrogen bonding with other molecules, being able to accept or donate one hydrogen atom, and also render the ethanol molecule more stable than some other organic compounds of similar molecular weights.



Alcohol. Fig. 1 (**a**) Two-dimensional representation of molecular structure for an ethanol molecule. (**b**) Three-dimensional "ball-and-stick" model of an ethanol molecule.

Metabolism of Alcohol

The primary route of entry for alcohol into the human body is through consumption (drinking) although it also can be absorbed through the skin. Once ingested, alcohol is transported down the esophagus into the stomach. There, it acts as an irritant by increasing the levels of hydrochloric acid (a chemical that aids in the process of digestion) that are secreted from the stomach lining. Approximately 20% of the alcohol consumed is absorbed through the stomach where it is picked up by small blood vessels and transported directly into the bloodstream. The remaining alcohol passes into the small intestine where most of the remaining 80% is absorbed through the intestinal walls into the bloodstream. From there it is carried to the liver and then on to the rest of the body. Because alcohol is water-soluble, it mixes easily with the bloodstream and is quickly circulated throughout the entire body, where it is likely to come into contact with every major organ including the heart, lungs, and central nervous system.

While in the liver, much of the alcohol is broken down by enzymes through the process of metabolism. One of the primary pathways (though certainly not the only one) for this process involves the enzyme alcohol dehydrogenase (ADH), which catalyzes the oxidation of ethanol into acetaldehyde (CH_3CHO). While ethanol itself is not a carcinogen, acetaldehyde is mutagenic, which means that it is very often toxic and carcinogenic as well. It is this chemical that is largely responsible for many of the physiological consequences alcohol exerts on the body. This compound is eventually broken down further by aldehyde dehydrogenase 2 (ALDH2) in the cell's mitochondria where it is converted into the acetate: acetic acid (CH_3COOH), whose effects include depression of the central nervous system. The acetate is eventually metabolized to form either carbon dioxide (CO_2) in the heart, skeletal muscle, and brain cells; or to form acetyl CoA ($C_{23}H_{38}N_7O_{17}P_3S$), which plays an important role in the production of energy and the neurotransmitter acetylcholine [7].

The rate at which alcohol is eliminated from the blood has been found to be on average 0.015% per hour, but as high as 0.06% per hour. Given that most standard drinks contain approximately 0.06% alcohol by volume, this estimate suggests that the body can eliminate up to one

alcoholic beverage each hour. However, a number of factors influence the rate of metabolism, including a person's genetics, gender, ethnicity, types and levels of enzymes present in the metabolic system, amount of food present in the stomach, and other variables as well. Recent research has suggested that the rate at which alcohol is absorbed and metabolized can vary by as much as three to four times across individuals. However, new research methods that allow precise dosing and specially grown cultured cells show promise in improving our understanding related to alcohol metabolism [6].

Effects of Alcohol on the Human Body

The effects of alcohol on the human body are numerous. Perhaps the area most widely studied with respect to the physiological effects of alcohol concerns its impact on the brain. Research has demonstrated that different regions of the brain vary in their levels of sensitivity to alcohol. Unlike other psychotropic drugs, which tend to target the receptors for specific neurotransmitters, alcohol appears to exhibit an influence over a number of areas and in variety of ways. Receptor sites for the neurotransmitters gamma-aminobutyric acid (GABA, implicated in inhibition of anxiety), *N*-methyl-D-aspartic acid (NMDA, which may be implicated in the physical dependence of alcohol), and serotonin (implicated in mood regulation) are just a few examples of those that have been shown to be specifically influenced by the presence of alcohol [1].

It has already been noted that alcohol is quickly and easily mixed with the bloodstream and distributed throughout the body. In fact, this process occurs so quickly that alcohol carried by the circulatory system can reach the brain in less than 1 min after consumption. Because of the way the vascular system is structured in relation to the brain, the blood (and consequently the alcohol) reaches the outer cortical areas first, before making its way inward and downward through the brain structures. This pattern suggests that the first areas of the brain to be affected by alcohol are those responsible for higher order processing (affecting such domains as judgment, decision making, and inhibition), followed by lower order processing centers (affecting coordination, memory, emotion, and sensory processing), and finally reaching the more primitive areas of the brain (affecting levels of consciousness and life functions such as breathing and heart rate).

While the initial impact of alcohol on the brain may be immediate, the consequences of prolonged use have longer-lasting effects. Many of these effects are not seen during the childhood or adolescent years (i.e., liver cirrhosis, hepatitis, etc.) because their onset and course generally require longer periods of development than adolescence affords. Despite this, recent studies have begun to demonstrate the negative impact of moderate to heavy alcohol consumption among adolescents. These findings include lower levels of sex hormones (estrogen in females, testosterone in males), lower levels of growth hormones, increased levels of liver enzymes typically identified as indicators of liver damage, and lower bone mineral density [3]. Further, alcohol use in adolescence is associated with decreased hippocampal volume (associated with memory impairment), abnormalities in the corpus callosum, and overall smaller brains when compared to control groups of adolescents who did use alcohol [5].

Beyond the problems already discussed, there also exists growing evidence that alcohol use during adolescence may further lead to long-term physiological consequences. One suggestion is that because of the rapid growth and development taking place during adolescence, exposure to alcohol during this critical period may disrupt cognitive development in such a way that it may predict future psychological and physiological concerns [3]. There remains much to be learned with respect to the short- and long-term impact of alcohol consumption among adolescents. Moreover, the preliminary findings already discussed, along with the recently observed trends in adolescent alcohol consumption (see "Drinking," this volume) underscore the need for continued investigation into this important area of research.

One final area that must be addressed concerns the impact of others' alcohol consumption on child and adolescent development. Children can experience the effects of others' alcohol use both directly and indirectly. For example, the social environment plays a significant role in adolescents' decisions to consume alcohol, particularly with respect to the influence of parents and peers [2]. Further, among the more notable examples of direct consequences to childhood development are the fetal alcohol spectrum disorders, including fetal alcohol syndrome.

Fetal alcohol syndrome is one of the leading causes of birth defects as well as a leading cause of mental retardation. The disorder is believed to develop prenatally as a result of heavy drinking by the mother during pregnancy. Because alcohol is distributed so easily throughout the circulatory system and because the developing fetus receives its blood supply from the mother, the mother's alcohol consumption can have a direct and negative impact on the fetus's development. The problems associated with fetal alcohol syndrome are many. Children with this disorder tend to exhibit retarded growth; cognitive, neurological, and motor deficits; learning difficulties, and social and behavioral problems. They may also display a number of permanent physical abnormalities, particularly

with respect to craniofacial malformations. These can include widely spaced eyes, small eye openings, and skin folds at the corners of the eyes; a short nose and lower nasal bridge; small head circumference, small midface, and receding chin; thin upper lip and a groove between the nose and upper lip. Often brain development is also impaired, with a number of brain structures including the corpus callosum, cerebellum, and basal ganglia showing decreased volume and size.

Summary

In summary, alcohol represents a significant problem for children and adolescents throughout their development. The consequences associated with exposure to alcohol during critical developmental periods accentuate the severity of this problem. While a majority of the available research has focused on the effects alcohol has on the brain and central nervous system, it is clear that the consequences are many and far reaching. Many questions still remain regarding the extent to which the chronic and severe alcohol-related problems observed in adulthood will also be observed in adolescence. However, the relationship between early alcohol use and later alcohol-related problems has already been established. Despite the magnitude of the current problems associated with alcohol and adolescent populations, new technologies and research methodologies suggest our understanding of these important issues will continue to improve as future investigations are undertaken.

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Suggested Resources

For the most up-to-date research on specific topics related to alcohol, the reader is referred to the following internet resources:

The National Institute on Alcohol Abuse and Alcoholism (NIAAA). Accessed November 2008 http://www.niaaa.nih.gov/

The National Institute on Drug Abuse (NIDA). http://www.nida.nih.gov/

Alcohol

►Depressants

Alcohol Exposed

►Alcohol Exposure

Alcohol Exposure

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Synonyms

Alcohol exposed; Alcohol related neurodevelopmental disorder (ARND); Fetal alcohol effects; Fetal alcohol spectrum disorder (FASD); Fetal alcohol syndrome (FAS); Prenatal alcohol exposure

Definition

The term alcohol exposure is used to denote the adverse effects of maternal alcohol consumption on the developing fetus. Alcohol exposure is a general term representing the wide spectrum of physiological, cognitive, and behavioral difficulties resulting from varying degrees of alcohol use during pregnancy.

Description

The term alcohol exposure is used to denote the wide spectrum of difficulties that may arise from maternal consumption of alcohol during pregnancy. Conceptually, alcohol exposure serves as a broad umbrella encompassing the multitude of physiological, neurological, behavioral, emotional, social, and academic deficits resulting from the teratogenic effects of alcohol in utero. Fetal alcohol syndrome (FAS), fetal alcohol spectrum disorder (FASD), and

alcohol related neurodevelopmental disorder (ARND) are specific terms used to characterize the varying degrees of impairment that result from maternal alcohol consumption. Alcohol exposure serves as a general term used to indicate exposure to alcohol during pregnancy without describing the degree of resultant fetal impairment. Historically, FAS has been viewed as the form of alcohol exposure resulting in the most severe physiological, cognitive, and behavioral impairments in children.

Contemporary base rate estimates suggest that between 9 and 10 per 1,000 live births or 40,000 children are diagnosed with alcohol exposure each year, with relatively fewer (2.8 per 1,000 live births) diagnosed with FAS [1, 2, 4]. Diagnostic criteria for FAS is well defined and includes the presence of facial dysmorphia (lack of philtrum or ridge between mouth and nose, widely set eyes or small eyes, and thick upper lip), growth deficiency (low body weight and height), and central nervous system dysfunction (structural brain damage and/or cognitive impairment). However, whereas criteria for FAS is definitive, criteria for alcohol exposure, also referred to as FASD, is often vague, and may only include only one or two of the aforementioned genres of impairment or impairments in behavioral, emotional, and social functioning [1, 4].

Holistically, those diagnosed with any form of alcohol exposure may experience a plethora of impairments ranging in severity from mild to severe. The most common cognitive impairment resulting from alcohol exposure is a reduction in overall IQ, with reductions ranging from 7 to 35 points below the mean; alcohol exposure, specifically FAS, is the most common cause of mental retardation in the Western hemisphere [1]. Other cognitive deficits common among those with alcohol exposure include reduced verbal comprehension ability, memory deficits, and difficulties in social learning and applying social norms. Executive function deficits, including difficulty sustaining attention, planning, organizing, and inhibiting are exceedingly common. Those diagnosed with alcohol exposure are particularly prone to emotional and behavioral challenges, including hyperactivity, aggression, oppositional behavior, stereotypical behavior, and inappropriate sexual behavior, among others [1]. Both externalizing difficulties, as previously mentioned, and internalizing difficulties, such as depression, anxiety, and low self-esteem, are common, although some have asserted that continued parent alcohol use in the home, as opposed to the effects of alcohol exposure in isolation, is to blame for many behavioral challenges [3].

In sum, it has been estimated that between 84 and 94% of those diagnosed with alcohol exposure experience behavioral and emotional challenges. Common diagnoses found among the alcohol exposed population include ADHD, depression, oppositional defiant disorder, conduct disorder, and bipolar disorder [1, 3, 4]. Cognitive, behavioral, and physiological difficulties have been found to persist into adulthood, with some dissipation in the appearance of physiological symptoms. Many of those diagnosed with alcohol exposure have been found to become dependent on alcohol use in adulthood [4].

Relevance to Childhood Development

Alcohol exposure, whether mild or severe, often leads to pervasive and persistent cognitive and behavioral difficulties influencing the individual throughout the lifespan. Early detection and intervention has been cited critical first steps toward mitigating the influence of alcohol exposure on overall well-being [1]. Previously cited cognitive and behavioral sequelae manifest during childhood and stand to greatly impede academic performance. Those working with children affected by alcohol exposure must be attuned to the unique presentations of the disorder and resultant academic difficulties should proper intervention ensue. Given the breadth of challenges and needs that may arise as a result of alcohol exposure, comprehensive academic and behavioral intervention plans and supports are frequently warranted as part of both general and special education programming. While consideration for special education programming is not necessary in all cases of alcohol exposure, design of appropriate Individual Education Plan goals and objectives, including consideration of behavioral and social/emotional supports, is integral in cases where special education is required. Careful attention should be paid to student needs surrounding attention, planning, organization, and self-regulation. Completion of functional behavior assessments (FBA's) and resultant behavior intervention plans (BIP's) should occur in cases where behavior is found to impede learning and social functioning, regardless of eligibility or need for special education supports. School based counseling can prove helpful in assisting students struggling with issues related to peer interaction, self-esteem, and other internalizing or externalizing behaviors.

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Alcohol Related Birth Defects (ARBD)

►Fetal Alcohol Effects

Alcohol Related Neurodevelopmental Disorder (ARND)

►Alcohol Exposure
►Fetal Alcohol Effects

Alcoholism

►Chemical Dependency

Alexia

►Childhood Aphasia

Allele

Definition
One member of a pair located on the same points of a pair of chromosomes.

Description
Individuals inherit two alleles for each gene. One allele is inherited from each parent. Various alleles produce variations of inherited characteristics. For example, if both alleles are the same, the person will inherit dark hair. However; if each allele is different, the dominant gene will override the recessive gene. If one allele has the characteristic of dark hair and the other allele has the characteristics for light or blonde hair, the dominate gene for dark hair will override the gene for light or blonde hair.

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Allowance

►Adjustment

Allport, Gordon Willard

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Life Dates
1897–1967

Educational Information
After graduating second in a class of 100 from Glenville High School in Cleveland, Gordon Allport attended Harvard beginning in the fall of 1915 [7]. By 1919, he had earned his bachelor's degree majoring in psychology and social ethics [10]. After graduation, Allport spent a year teaching English and sociology at Robert College in Constantinople. During this time Allport was offered a graduate fellowship at Harvard, and so he returned to earn a Ph.D. in psychology finishing in 1922 at the age of 24 [6, 7]. His dissertation, *An Experimental Study of the Traits of Personality: With Special Reference to the Problem of Social Diagnosis*, reflected his dual interests in psychology and social issues [10].

After completing his Ph.D., Allport was awarded the Sheldon Travelling Fellowship and spent the first year of the fellowship in Germany and the second at Cambridge

University. At the end of the fellowship Allport was offered an instructor position in social ethics at Harvard [6]. He remained there for 2 years and then accepted a position as assistant professor in psychology at Dartmouth. In 1930, after 4 years of teaching at Dartmouth, he returned to Harvard and would finish his career there [10].

Accomplishments

Allport's early focus was on personality. He stated that "No other psychologist, at least at Harvard, seemed to be interested in social values as an academic problem nor in developing a lifelike psychology of personality" [7]. He is generally thought to have been the first person in North America to teach a college level course on personality [10]. As a faculty member, he helped to establish at Harvard the Society for the Psychological Study of Social Issues, the Department of Social Relations, the Department of Sociology and served 18 years as the chair of the Committee on Higher Degrees of the social relations department.

The book *Personality: A Psychological Interpretation* [1] was an important introduction of his theory of personality [6]. Gordon would continue to write a proliferation of articles and books. Among his more influential books are: *The Nature of Prejudice* [2], *Becoming: Basic Considerations for a Psychology of Personality* [3], *Pattern and Growth in Personality* [4], *Letters from Jenny* [5], *The Person in Psychology* [7] and *The Psychology of Rumor* [8].

Contribution

Allport argued that psychology should use both idiographic and nomothetic methods. It was his assertion that the discipline focused too much on nomothetic approaches and he insisted that if you wanted to know something about an individual you should ask that individual first [10]. He believed every person was unique and that the best way to study psychology was to evaluate the healthy person [9]. Perhaps his most radical and best known concept is that of functional autonomy. Allport believed that while adult motives developed out of childhood drives, adult motives become independent. In other words, motivation occurs independently from past experiences.

Allport's personality theory asserted that within individuals were real traits that helped guide behavior. He classified these traits into two major categories: (a) common traits, traits that may occur among a group of people in any culture, and (b) individual traits, traits that are uniquely expressed within the individual. He further divided these traits into three levels. The first was what he referred to as cardinal traits. These were traits that were so dominant that the bulk of a person's behaviors could be linked directly to them. The second level was central traits. These referred to characteristics that were easy to detect and each person possessed an average five to ten. The third level was secondary traits. He believed these were harder to detect and only persons who were close friends of the individual may even be aware of these traits. While Allport attempted to identify each type of trait, he believed they acted in an interdependent way. None of the traits were separate from the influence of the others, and the trait that exerted dominance was highly dependent on the situation.

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Ally

▶Friendship

Alpha-Galactosidase Deficiency

▶Fabry Syndrome

Alpoxid

▶Chlordiazepoxide

Alteration

►Adjustment

Alternative Assessment

►Play-Based Assessment

Altricial

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Synonyms

Neoteny; Nidicolous

Definition

An immature state of development following birth or hatching that necessitates care by others.

Description

Altricial animals are born in an immature state and unable to care for themselves. Owls, kangaroos, cats, dogs, and humans are examples of altricial species. In contrast, precocial organisms are mobile and independent within hours or days following birth or hatch (e.g., ducks, zebras). Because of the extensive care altricial organisms require, they are usually born as singletons or in small numbers into social groups where there is the opportunity to have more than one caregiver.

Humans require care for a long period of time and reach sexual maturity and adulthood after a long period of postnatal development. The benefit of this lengthy period of immaturity is that the nervous system has an extended period to develop, ultimately resulting in more complexity and greater cognitive ability. Infancy, childhood and adolescence provide humans with a range of experiences, each of which have the potential to shape the nervous system and the organism's capabilities [1].

Relevance to Childhood Development

At birth, the human brain is not fully developed and has great plasticity. The vast majority of neurons (i.e., nerve cells) are created during the prenatal period; however, the brain continues to grow and reconfigure throughout the lifespan. The most dramatic postnatal changes occur during infancy and childhood [4]. As the young organism experiences the world, neurons that are activated will form communication pathways with other active neurons. These pathways become stronger with continued use. At the same time, unused neurons die off, allowing room for the communication network and increasing the brain's efficiency [2]. Proper nutrition, a stimulating environment, and positive social interactions facilitate this development and are necessary for the brain to reach its full potential [3].

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Altruism

►Prosocial Behavior

Ambien (Zolpidem)

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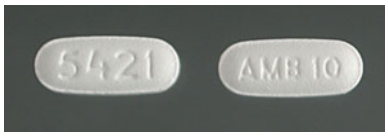
Synonyms

Hypnogen; Myslee; Nimadorm; Nitrest; Sanval; Stilnoct; Stilnox; Z drug; Zoldem; Zolfresh; Zolpidem; Zolt

Definition

A nonbenzodiazepine (imidazopyridine structure) hypnotic drug utilized mainly with insomnia and other sleep disorders, but also used in patients with brain injury. It is chemically distinct from previous generations of

Ambien (Zolpidem). Fig. 1



Ambien (Zolpidem). Fig. 2

hypnotics such as the barbiturates (e.g., Seconal) and benzodiazepines (e.g., Halcion, Restoril). It potentiates (increases amounts of) GABA, an inhibitory neurotransmitter. It was introduced to the public in the early 1990s by G.D. Searle & Company, and is a controlled drug (U.S. Schedule IV).

Description

Ambien mainly affects the benzodiazepine (GABA-A) receptor site, and at high doses, possesses anticonvulsant, myorelaxant, and anti-conflict effects, but nearly all doses possess rapid-onset, short duration hypnotic properties [1]. Its safety and effectiveness in children has not been confirmed, and should be used only under "extreme caution" [6]. In a meta-analysis of newer hypnotic drugs published in JAMA [2], only minor differences were evident between Ambien and other hypnotics such as benzodiazepines, both classes of drugs produced reliable improvements in sleep parameters of patients with chronic insomnia. Previous studies involving 1,894 patients had a median treatment duration of 7 days [2], however, a study of intermittent (when deemed necessary by the patient) use of 10 mg Ambien indicated effectiveness, with no evidence of dose dependency, discontinuation syndromes, or dose escalation [3]. A 1997 study found a lack of re-bound insomnia with Ambien, unlike Halcion (triazolam) [5].

Adverse effects such as Ambien-induced psychosis are rarities. Nonetheless, there have been cases of psychotic reactions in Ambien patients without a history of psychosis. A 1996 study of these reactions discovered all the patients who experienced psychotic reactions with the drug were female, criterion for Ambien dose dependency were met, and the adverse reaction quickly resolved once the drug was no longer administered [4]. As with most sleeping pills, Ambien should not be used in conjunction with alcohol or other depressants, which tend to have a synergistic effect on the central nervous system.

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Ambisexuality

►Bisexual

Ambivalent Attachment

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Synonyms

Anxious attachment; Attachment classifications; Attachment patterns; Attachment styles; Insecure attachment; Insecure-resistant attachment; Resistant attachment; Strange situation

Definition

Ambivalent attachment is a form of insecure attachment characterized by inconsistent responses of the caregivers and by the child's feelings of anxiety and preoccupation about the caregiver's availability.

Description

Ambivalent attachment is one of the attachment patterns categorized in the Strange Situation, and it is classified

as C. This type of attachment is characterized by caregivers who respond to the infant's needs in inconsistent ways, sometimes being neglectful and sometimes responsive. The infant develops an anxious and preoccupied pattern of attachment in which he or she is not sure when the caregiver will respond to his or her needs. As a coping mechanism, the infant develops two strategies, one of clinginess and proximity seeking, and one of avoidance, indifference, or resistance [5]. In the Strange Situation ambivalently attached infants display puzzling behavior. They are extremely distressed by the departure of the parent, yet, they are not easily soothed by the parent's return. At the reunion they alternate between seeking proximity and avoiding or resisting contact, and do not return to play quickly [1].

This group of infants is the least understood, because they constitute a small percentage of the non-clinical population, and approximately 7–15% of United States infants fit this classification. The Strange Situation behavior of these infants reflects internal working models of the caregiver, the self, and the world as inconstant and unreliable. These infants are different than insecure-avoidant children, as insecure avoidant children have developed working models of consistent unavailability of the caregiver, and have developed a strategy accordingly. However, insecure-ambivalent children have inconsistent models of both availability and unavailability. These multiple contradictory mental models of attachment create insecurity in the child and do not leave cues for a clear approach to regulate emotions. Because of the deficit in the internal self-regulatory capacities, the child's sense of uncertainty gives him or her an urgent internal need for comfort of others [2].

The inconsistency of responses forces these children to develop a strategy in which they focus their attention in the attachment figure, centering their efforts in predicting or influencing the caregivers' attitude and states of mind. This way, both the clinging and resisting behaviors are aimed at attempting to attract the caregivers' attention and responses. Furthermore, infants feel the need to monitor their caregivers and stay close to them to assure access. This heightened attachment behavior limits the opportunities for exploration [2].

Home observation of maternal behavior of ambivalent infants has shown low levels of availability. This relation was observed in Ainsworth's Baltimore study, as during the last 4 months of the first year mothers showed deficits in affection, responsiveness to the infant's crying, sensitivity to infant's signals, cooperation, and acceptance. At the same time, these mothers offered some level of physical comfort, yet inconsistently [1]. Similar results were found in subsequent studies, where ambivalent infants have been observed to experience the least amount of reciprocal interactions and involvement with their mothers at 1, 3, and 9 months compared to infants in other classifications. Additionally, this group of infants experienced a disproportionably frequent number of occasions in which mothers did not respond to their vocalization. Similarly, mothers of ambivalent infants have shown to initiate the least amount of interactions with their babies at 6 months compared to both other groups of infants [4].

Although mothers of ambivalent infants show a pattern of inability, this is not the case when it comes to infant explorations. Studies have shown that these mothers are characterized by intrusion and interference with the infant's attempts to explore the environment. This way, they are less involved in situations in which their infants want their attention and more involved in situation in which their infants do not want their attention. These mothers were observed to initiate interactions when their infants were involved in other activities or were not willing to interact. This maternal behavior seems to contribute to the infant's behavior in the Strange Situation, as maternal interference of the infant's exploration forces the child to redirect all the attention towards the mother. Both the mother's low availability and her intrusion contribute to a single outcome, the development of a child who is extremely dependent and lacks autonomy [2].

Both the child's and mother's behavior are viewed as adaptive strategies. The immaturity and clinginess of the child serves the function of maintaining proximity to the caregiver. However, this relationship places most of the responsibility for maintaining proximity on the infant. The child has developed a strategy of emphasizing immaturity to increase care. This strategy is often used by children when they feel their care is reduced, for example, after the birth of a sibling. In addition to immaturity, the ambivalently attached child has developed an increased monitoring of the mothers, because the child perceives the mother as inefficient and weak. In a way, the infant feels the need to care for her, because if something happens to the mother the infant will lose his or her only sense of a secure base. On the other hand, maternal behavior is interpreted as part of a maternal copying strategy. In the mother's mental model, this pattern of interactions assures her that she is central in her child's life. She denies attention to feel needed and to make the infant feel dependent. Similarly, she interferes with exploration to limit the child's autonomy, and to ensure the child remains available as an attachment figure. The heightened dependency of the child is viewed as reassurance to the mother

that she will be wanted and that the child will remain close. Consequently, the mother's working models present the infant with a situation of inversed roles in the mother-child relationship [2].

It has been argued that the temperament of the ambivalently attached child contributes to the behavior of the Strange Situation, since in general ambivalently attached children display the highest level of irritability and distress during separation. Yet, infant temperament has shown low association with Strange Situation classification. The argument of temperament affecting classification is weak, since the biggest determining factor is not the level of distress but the behavior at reunion, and the combination of proximity-seeking and resisting behaviors is characteristic of ambivalent children with diverse temperaments [2].

Relevance to Childhood Development

Attachment style in general, and ambivalent attachment in particular, are central organizers of experiences and personality throughout development. Ambivalent attachment seems to affect the way the child generates expectation about the self, the environment, and close relationships. This type of attachment puts the child at risk of developing difficult patterns of socialization exhibiting ambivalence and insecurity in intimate relationships through life [5].

Ambivalent attachment has a great impact on the amount, and quality, of explorations of the infant. Research has shown that ambivalent infants play with less toys and objects than infants in the other classifications. As toddlers, they engage in significantly less symbolic play, and as preschoolers they are less likely to initiate social offers to their peers and they are more likely to ignore social offers from their peers compared to children in other classifications. Additionally, they are viewed by other children as more helpless and dependent, and they elicit nurturance from securely attached children and exploitation from avoidant peers. At ages 5–7 children who were previously categorized as insecure ambivalent, have reported to experience the highest level of loneliness. Similarly, ambivalently attached children have shown to be less dominant, less goal oriented, less achievement oriented, and less independent than children with secure attachments at age five [2].

As a result of early patterns of interactions, children who had been characterized as ambivalent tend to place this ambivalence in romantic relationships and to reverse role with their children, using their children as a safe base. Research has shown that parents of ambivalent children generally behave very similar to mothers classified in the Adults Attachment Interview as preoccupied [2]. Mothers classified as preoccupied usually limit children's autonomy and exploration. Additionally, they seem to respond with acceptance most often to infant's expression of fear, and infant's fear usually results in limited exploration [3]. These mothers also ignore or invalidate their infant's expression of initiative during play. Similarly, preoccupied mothers were observed to express greater anxiety when preparing their adolescents for stressful events, directing the conversation towards their own feelings, and expressing lack of confidence in the adolescent's ability to be independent [2].

Children of mothers classified as preoccupied are frequently classified as ambivalent, this seems to be explained by the fact that an ambivalent attachment style results in an adult who is preoccupied, confused, angry and ambivalent in their state of mind in relation to attachments and in turns, reflects that ambivalence in his or her responses to the child. The preoccupied state of mind does not allow the adult to respond affectively to the infant's cues, maintaining a generational cycle of ambivalent attachments [2].

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American College of Obstetricians and Gynecologists (ARCOG)

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Description

The American College of Obstetricians and Gynecologists (ACOG) is a professional association of medical doctors specializing in obstetrics and gynecology in the United States.

The mission of ARCOG is to facilitate and promote professionalism, affirm dedication to the educational

process for women's health, and to foster the development of standards for residency coordinators in conjunction with CREOG.

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American Psychiatric Association

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Description

The American Psychiatric Association (APA) is a medical specialty society recognized world-wide. Its over 38,000 U.S. and international member physicians work together to ensure humane care and effective treatment for all persons with mental disorder, including mental retardation and substance-related disorders. It is the voice and conscience of modern psychiatry. Its vision is a society that has available, accessible quality psychiatric diagnosis and treatment.

Members

The APA is an organization composed primarily of medical specialists who are qualified, or in the process of becoming qualified, as psychiatrists. The basic eligibility requirement is completion of a residency program in psychiatry accredited by the Residency Review Committee for Psychiatry of the Accreditation Council for Graduate Medical Education (ACGME), the Royal College of Physicians and Surgeons of Canada (RCPS (C)), or the American Osteopathic Association (AOA). Applicants for membership must also hold a valid medical license (with the exception of medical students and residents) and provide one reference who is an APA member.

Vision

The APA is an organization of psychiatrists working together to ensure humane care and effective treatment for all persons with mental disorders, including mental retardation and substance-related disorders. It is the voice and conscience of modern psychiatry. Its vision is a society that has available, accessible quality psychiatric diagnosis and treatment.

Mission

The mission of the APA is to:

- Promote the highest quality care for individuals with mental disorders (including mental retardation and substance-related disorders) and their families.
- Promote psychiatric education and research.
- Advance and represent the profession of psychiatry.
- Serve the professional needs of its membership.

Values

- Best standards of clinical practice
- Highest ethical standards of professional conduct
- Prevention, access, care and sensitivity for patients and compassion for their families
- Patient-focused treatment decisions
- Scientifically established principles of treatment
- Advocacy for patients
- Leadership
- Lifelong professional learning
- Collegial support
- Respect for diverse views and pluralism within the field and the association
- Respect for other health professionals

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American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)

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Description

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) is the standard classification of mental disorders used by mental health professionals in the United States. It is intended to be applicable in a wide array of contexts and

used by clinicians and researchers of many different orientations (e.g., biological, psychodynamic, cognitive, behavioral, interpersonal, family/systems). The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) has been designed for use across clinical settings (inpatient, outpatient, partial hospital, consultation-liaison, clinic, private practice, and primary care), with community populations. It can be used by a wide range of health and mental health professionals, including psychiatrists and other physicians, psychologists, social workers, nurses, occupational and rehabilitation therapists, and counselors. It is also a necessary tool for collecting and communicating accurate public health statistics.

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American Psychological Association (APA)

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Description

Based in Washington, DC, the American Psychological Association (APA) is a scientific and professional organization that represents psychology in the United States. With 148,000 members, APA is the largest association of psychologists worldwide.

Mission Statement

APA Bylaws I.1

The objects of the APA shall be to advance psychology as a science and profession and as a means of promoting health, education, and human welfare by

- The encouragement of psychology in all its branches in the broadest and most liberal manner
- The promotion of research in psychology and the improvement of research methods and conditions
- The improvement of the qualifications and usefulness of psychologists through high standards of ethics, conduct, education, and achievement
- The establishment and maintenance of the highest standards of professional ethics and conduct of the members of the Association
- The increase and diffusion of psychological knowledge through meetings, professional contacts, reports, papers, discussions, and publications

thereby to advance scientific interests and inquiry, and the application of research findings to the promotion of health, education, and the public welfare.

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American Sign Language (ASL)

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Description

American Sign Language (ASL) is a complete, complex language that employs signs made with the hands and other movements, including facial expressions and postures of the body. It is the first language of many deaf North Americans, and one of several communication options available to deaf people. ASL is said to be the fourth most commonly used language in the United States.

Thomas Gallaudet, founded the first school for the deaf in Hartford, Connecticut.

Americans with Disabilities Act (ADA)

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Description

The Americans with Disabilities Act (ADA) is a federal mandated law that prohibits discrimination on the basis of disability in employment, State and local government, public accommodations, commercial facilities,

transportation, and telecommunications. It also applies to the United States Congress.

To be protected by the ADA, one must have a disability or have a relationship or association with an individual with a disability. An individual with a disability is defined by the ADA as a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such impairment, or a person who is perceived by others as having such impairment. The ADA does not specifically name all of the impairments that are covered.

There are five titles within the ADA that covers specific topics: ADA Title I: Employment; ADA Title II: State and Local Government Activities; ADA Title II: Public Transportation; ADA Title III: Public Accommodations; and ADA Title IV: Telecommunications Relay Services.

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Amfebutamone

►Bupropion

Amitriptyline

►Elavil®

Amniocentesis

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Synonyms

AFT; Amniotic fluid test

Definitions

A common, prenatal medical procedure usually conducted about the 16th week of pregnancy in which a needle is inserted into the uterus through the abdomen and a small amount of amniotic fluid is withdrawn from the amniotic sac surrounding the developing fetus. The fluid, which contains fetal tissues, is examined to determine the presence of genetic disorders and birth defects.

Description

Amniotic fluid, a substance with a consistency similar to water, contains live fetal skin cells and additional chemicals that can be examined during the prenatal period for genetic defects and chromosomal abnormalities possessed by a developing fetus. During the procedure amniocentesis, a small sample of amniotic fluid is withdrawn from the amniotic sac surrounding the fetus. During the analyzation period of 10–12 days, the live fetal skin cells are separated from the amniotic fluid and grown in a laboratory prior to examination. Additionally, levels of *alpha-fetoprotein (AFP)*, a protein found in amniotic fluid, are measured and used to determine the presence of neural tube defects (NTDs). Amniocentesis is not offered to all pregnant women due to the low risk of miscarriage that follows the procedure. Medical professionals offer amniocentesis to those that are considered to have an increased risk for genetic birth defects, chromosomal birth defects or certain malfunctions. Disorders that amniocentesis can be used to screen for include down syndrome, NTDs, cystic fibrosis, fragile X syndrome, sickle cell disease, muscular dystrophy and tay-sachs among others. Side-effects and risks of amniocentesis include mild pain or cramps, period pain, spotting (light vaginal bleeding), fetal injury from the needle (reduced by the use of ultrasound guidance), puncture of the placenta (most common injury, self-healing), bacterial infection, Rhesus disease and in rare cases miscarriage.

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Amniotic Fluid Test

►Amniocentesis

Amphetamine Salts

►Stimulant Medications

Amygdala

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Synonyms

Amygdaloid nucleus; Basal ganglion; Corpus amygdaloideum

Definition

The amygdala is an almond-shaped structure located at the anterior medial portion of the temporal lobe of the brain. It is involved in the perception of emotional and affective stimuli and is therefore considered to be a part of the limbic system.

Description

The word "amygdala" derives from the Greek word for almond, the most common description given to the shape of this structure. Anatomically, the amygdala is a mass of gray matter composed of a collection of nuclei located anterior to the hippocampus and medial to the hypothalamus in the temporal lobe of the brain.

The amygdala receives input from various senses: olfactory, visual, somatosensory and gustatory. It then relays information to other areas of the brain such as the frontal and prefrontal cortex, orbitofrontal cortex, hypothalamus, hippocampus and brain stem nuclei. These connections help control the emotional and physiological responses to perceived stimuli. Some of the physiologic responses induced by the amygdala include vasodilatation of vessels in skeletal muscle, tachypnea, elevated body temperature, localized sweating, bowel hypomotility, sphincter constriction and piloerection. Neurotransmitters involved in the amygdaloid pathways include norepinephrine, serotonin, acetylcholine and dopamine.

In general, the amygdala is considered to be an inhibitory center that prevents response to irrelevant stimuli and allows habituation to repeated stimuli. More specifically, it has been theorized that the amygdala is involved in the inhibition of the activity of the periaqueductal gray (PAG), one of the major structures involved in the interpretation of fear. Normally, the PAG results in protective and defensive reactions. The amygdala suppresses these actions resulting in freezing, a manifestation of learned fear.

It has been suggested that there are two pathways directing input to the amygdala. Both pathways traverse the thalamus prior to reaching the amygdala. However, while one path courses directly from the thalamus to the amygdala, the other path is first diverted to the cerebral cortex. The purpose of this dual pathway is thought to allow two reactions to emotional stimuli to occur. The first reaction is an immediate reaction (the direct path); it allows the body to produce a quick response to potentially harmful stimuli. The delayed reaction travels through the cortex first, allowing the brain to analyze stressful situations in more detail to determine the most appropriate response. Through this combined process, the body can instantly prepare itself for potentially dangerous stimuli. Then, if the stimuli are judged to be less harmful, the initial response can be curtailed.

One of the most well-known functions of the amygdala is its involvement in the perception of fear. By incorporating input from a number of sources the amygdala is able to modulate the physiologic and emotional responses to fear. Moreover, the amygdala maintains a certain degree of plasticity which aids in the creation of short- and long-term memory for those situations. In this way, the amygdala is able to control future responses to those same fearful stimuli. In fact, it is postulated that this idea is, in part, responsible for the extinction of phobias through proper conditioning.

Research has suggested that the short- and long-term memory created by the amygdala is done so in an indirect manner. The amygdala secretes neuromodulatory substances in response to emotional situations. Adrenergic, cholinergic and glucocorticoid transmitters are thought to enhance the memory created by those situations. Gamma aminobutyric acid (GABA) and opioids tend to impair these memories. Once GABA and opioids are secreted by the amygdala, these substances influence the memory centers of the brain to either strengthen or weaken the memories for those events.

In addition to fear, the amygdala has also been implicated in the processing of stimuli involved in eating, drinking, sexual desires, aggression, reward and punishment. Unfortunately, in contrast to what is known about its function in the perception of fear, the involvement of the amygdala in other emotions has been less well studied.

According to LeDoux [4], the amygdala begins storing information relating to the body's physical state as early as three months of gestation and as late as five years old. For

example, if a pregnant mother became frightened from a house fire and experienced an appropriate physiologic response (i.e. tachycardia, tachypnea, muscle tension, etc.), the fetus would experience the same physical state which would be stored as a memory by the amygdala. In the future, if that person were to be confronted with a similar situation, the frightening experience would be re-triggered.

Changes in the amygdala have been associated with a number of conditions such as post traumatic stress disorder (PTSD), attention deficit and hyperactivity disorder (ADHD), phobias, panic disorder, schizophrenia, depression and autism. More generally, it is thought that the involvement of the amygdala in these situations is related to an increased level of fear and anxiety that is often found to be a comorbidity of those disorders.

There are theories that have suggested that the involvement of the amygdala in some of the above conditions is related to its initial overactivity. The result is an overexcitation of neurons that causes the death of cells in the amygdala and a reduction in its size. As an example, this theory has been proposed as part of the mechanism in the development of depression. In fact, some researchers have postulated that anti-depressant medications may serve to reduce overexcitability thereby preventing the destruction of neurons.

Lesions of the amygdala, such as in Kluver-Bucy syndrome, have been associated with changes in emotion and appetite. Patients exhibit hyperorality, bulimia, hypersexuality and aggression. These lesions may be due to insults such as trauma, infection, seizure activity and tumors. Depending upon the cause of the lesion, the presentation of these symptoms may last only a few days or may be more permanent.

Relevance to Childhood Development

The intact functioning of the amygdala is crucial to the proper development of emotional states and their physiologic manifestations. The memories created by the amygdala early on in life allow the body to react appropriately at a later stage when posed with similar situations.

Changes in the amygdala have been linked to the development of autism in childhood. More specifically, it has been hypothesized that the amygdala plays a role in the recognition of facial expressions. Experiments focusing on monkeys with lesioned amygdalas have shown impaired social interactions in those monkeys, one of the key features of autism. However, others have argued that the lack of social interaction in these monkeys is not due to autism, but rather to a greater degree of fear which is no longer inhibited by an intact amygdala.

Additionally, Bauman et al. [1] conducted a study in which a group of juvenile monkeys had their amygdalas lesioned. They demonstrated that following one year of typical development, these monkeys began to develop stereotypical behaviors, another defining characteristic of autism. However, given the delay of one year in the development of stereotypies, it has been suggested that it is not a lesion to the amygdala itself that induces this behavior, but rather an alteration in the neural circuits involving the amygdala.

ADHD, a relatively common condition in children, has also been associated with changes in the amygdala. A study conducted by Plessen et al. [8] demonstrated that although the size of the amygdala did not differ between control and experimental subjects, the size of individual sub-regions was found to be smaller in children with ADHD. Moreover, morphologic disturbances in the amygdala may interfere with normal processing of fearful situations which may disrupt emotional learning and the drive to sustain attention to otherwise mundane stimuli.

Research has also indicated that there may be alterations in the pathways between the amygdala and the orbitofrontal cortex in children with ADHD; these pathways normally support decision-making and reward reinforcement. The disturbed connectivity of these two areas in children with ADHD may result in more impulsive behaviors and in preferences for smaller immediate rewards. Some of these pathways involve noradrenergic and dopaminergic activity. Therefore, stimulant medications which potentiate noradrenergic and dopaminergic transmission may help to enhance the cognition of children with ADHD.

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Amygdaloid Nucleus

►Amygdala

Anabolic Steroids

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Synonyms

Medical terms: Anabolic-androgenic steroids (AAS); Street terms: Gas, Gear, Juice, Roids

Definition

Anabolic steroids refer to a broad class of drugs that have both anabolic and androgenic properties that can be administered either by injection, taken orally, or via a transdermal patch.

Description

Anabolic steroids have two primary properties: (1) anabolic, which refers to an increase in protein synthesis which results in increased muscle tissue, and (2) androgenic, which refers to promoting the development of masculine sexual characteristics (e.g., deep voice, body hair).

Anabolic steroids were "invented" in the 1930s by chemists seeking to isolate the powerful male hormone produced by the testes. This hormone became known as testosterone, a combination derived from the words testicle, sterol, and ketone. Perhaps the first reference to using testosterone for muscle building purposes appeared in *Strength and Health* magazine in 1938. The use of injectable anabolic steroids to enhance performance was vigorously pursued by the Soviet Union and other Eastern bloc countries, beginning in the 1940s. Due to the success of athletes from the Soviet Union and, primarily, East Germany, the U.S. Olympic team physician Dr. John Ziegler helped to develop a steroid for use by American weightlifters (Dianabol). Dianabol was approved by the FDA in 1958 [3].

The medical establishment seriously harmed its credibility over the issue of steroids by asserting that they were ineffective for promoting gains in muscle mass or for enhancing athletic performance. Their position was based on a number of flawed studies conducted over the course of two decades. Literally thousands of athletes were aware of the effectiveness of steroids. More recent studies confirm what athletes have long known; mainly that steroids increase muscle mass, decrease fat mass, and generally improve athletic performance [4].

Relevance to Childhood Development

There are a number of adverse side effects noted with the use of anabolic steroids. It is important to note that many of these effects are only seen when steroids are taken at extremely high doses and/or for extended periods of time. Some of the most common side effects in males include increased acne, enlargement of breast tissue (gynecomastia), testicular atrophy, and premature baldness for those who are genetically predisposed. In females, the most common side effects include increased acne and body hair, enlarged clitoris, and disruptions in the menstrual cycle. Less common, and sometimes debated, side effects may include high blood pressure, liver damage (primarily associated with high doses of oral steroids), cardiac problems, structural changes in the heart (especially thickening of the ventricle) and behavioral/personality changes (increased aggression, psychosis). For the adolescent user, one of the main concerns is the premature closure of the epiphyseal fusion which would shorten the length of bones, and increased frequency and duration of erections [1].

Anabolic steroid use among adolescents is estimated by various studies to range from about 1–4% [2]. Most of the adolescent users, who tend to be male, participate in some type of competitive sport. Thus, they are using steroids primarily to enhance performance as opposed to augmenting the appearance of their physique. Although some believe there is a link between suicide and adolescent use of steroids, there are no data confirming this supposition. In addition, despite the popular notion that steroid users experience "roid rage," there are no data demonstrating that steroid use actually causes one to behave more aggressively [1].

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Analeptics

►Stimulants

Analysis of Covariance Structures

►Structural Equation Modeling

Analysis of Variance

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Synonyms

ANOVA

Definition

Analysis of variance (ANOVA) tests the null hypothesis that there are no differences in the means of measurements from two or more different groups.

Description

Suppose you are interested in determining whether different groups score differently on a particular continuous dependent variable. Calculating the differences between mean scores of each group is straightforward but gives no indication whether the differences are reliable or meaningful. The statistical technique analysis of variance (abbreviated ANOVA) determines whether differences in the average measurements of different groups are meaningful by comparing the variability between groups to the variability within groups.

Assumptions of Analysis of Variance

As with other null hypothesis significance tests, the assumptions of analysis of variance are normality, homogeneity of variance and independence of observations. The assumption of normality simply states that each measurement is sampled from a population that is normally distributed. Generally, this is a reasonable assumption for naturally occurring random variables. Sometimes it is possible to transform distributions that are not normally distributed by taking the logarithm, square root or reciprocal of each measurement. The assumption of homogeneity of variance is that all of the populations observations are drawn from have identical amounts of variability. ANOVAs are generally robust to violations of normality and homogeneity of variance. Independence of observations simply means that there are no confounds, that is, no systematic relationships between different measurements from the same group. Good experimental design can address many potential confounds. If a particular confound is unavoidable, factorial analysis of variance or analysis of covariance (see "*other experimental designs*" below) may be more appropriate.

The Null Hypothesis

The standard hypothesis in analysis of variance is that observations from each group are drawn from populations with the same mean. Because it is assumed in analysis of variance that all distributions are normal with homogenous variance – the same standard deviation – if they also have the same mean, the distributions are assumed to be identical. In other words, if distributions of observations from all groups are normal with the same mean and standard deviation, there is no evidence the observations from each group are not drawn from a single population.

Calculating an F Ratio for a One-Way ANOVA

Four numbers are necessary to calculate an F ratio for a one-way analysis of variance:

1. The total sum of squared residuals represents the total amount of variability:

$$SS_{\text{Total}} = \sum_{i=1}^{n} \left(X_i - \overline{X_{GM}}\right)^2$$

   For each of n observations, the statistical analyst (or, usually, her computer) calculates the difference between the observation (X_i) and the grand mean, the mean of all observations in all groups ($\overline{X_{GM}}$). All of those differences are first squared and then added together.
2. The sum of squared residuals under the treatment effect represents the total amount of variability remaining, or error, when different values are used in estimates for each group:

$$SS_{\text{Error}} = \sum_{i=1}^{n} \left(X_i - \overline{X_{Gi}}\right)^2$$

   For each of n observations, the statistical analyst calculates the difference between the observation (X_i) and the mean of all observations in the same group ($\overline{X_{Gi}}$). Those differences are squared and then added together.

	Sums of squared residuals	Degrees of freedom	*MS*	*F*
Treatment (variability between groups)	$SS_{Treatment} = SS_{Total} - SS_{Error}$ $\sum_{i=1}^{n}(X_i - \overline{X_{GM}})^2 - \sum_{i=1}^{n}(X_i - \overline{X_{Gi}})^2$	$df_{Treatment}$: $N - 1$	$MS_{Treatment}$: $\frac{SS_{Treatment}}{df_{Treatment}}$	$F = \frac{MS_{Treatment}}{MS_{Error}}$
Error (variability within groups)	$SS_{Error} = \sum_{i=1}^{n}(X_i - \overline{X_{Gi}})^2$	df_{Error}: $n - N$	MS_{Error}: $\frac{SS_{Error}}{df_{Error}}$	

3. Treatment degrees of freedom is one less than the number of different groups; if there are N groups, $df_{Treatment} = N - 1$.
4. Total degrees of freedom is one less than the number of observations; if there are n observations (preferably with exactly n/N observations per group), $df_{Total} = n - 1$. The difference between df_{Total} and $df_{Treatment}$ is df_{Error} – the degrees of freedom unaccounted for by differences between groups. $df_{Error} = n - N$.

These four numbers are combined to derive average estimates of variability between and within groups. Those estimates are compared as the F ratio.

An estimate of the total amount of variability accounted for by the treatment effect, or $SS_{Treatment}$, is derived from the total amount of variability and that remaining when the treatment effect is assumed: $SS_{Treatment} = SS_{Total} - SS_{Error}$. Mean squared residuals for the treatment effect, or $MS_{Treatment}$, is an estimate of the average amount of variability between groups determined by $SS_{Treatment}/df_{Treatment}$. Mean squared error, or MS_{Error}, is an estimate of the average amount of variability within groups. It is determined by SS_{Error}/df_{Error}. $MS_{Treatment}$ and MS_{Error} are the numerator and denominator of the F ratio, respectively:

Rejecting the Null Hypothesis

Statistical analysts assess the null hypothesis by comparing the average amount of variability between the different groups with the average amount of variability within groups. The resulting F ratio, named for Ronald Fisher, indicates the probability of obtaining results as extreme as or more extreme than the observed results if the null hypothesis were true. By convention, psychologists usually reject the null hypothesis if that probability is less than one in twenty. That is, they conclude that observations from different groups were not drawn from a single population if the probability of identical or more extreme results (an F ratio as high as or higher than the obtained) is $p < 0.05$.

Other Experimental Designs

One-way analysis of variances compare differences in means of two or more groups, for example, the heights of children in grades 1, 3 and 5. Suppose someone wanted to compare heights of boys and girls separately. They would have six different groups (grade 1 boys, grade 1 girls, grade 3 boys, grade 3 girls, grade 5 boys, grade 5 girls), but those groups would not be completely independent (although the observations would be); grade 1 boys have something in common with grade 1 girls and grade 3 girls have something else in common with them. There would be two factors – sex and education level – involved. In factorial analysis of variance, separate F ratios are calculated for each factor as well as for all possible interactions. If someone wanted to compare heights of the *same* children in grades 1, 3 and 5, he would probably use repeated-measures analysis of variance or multivariate analysis of variance, which are different ways of comparing means when observations are not independent. If someone else was interested in comparing heights of boys and girls of different ages rather than grade levels, she would use analysis of covariance. Analysis of covariance tests the null hypothesis that there are no differences in the means of measurements from two or more different groups, after the variability attributable to a different variable (a covariate, in this case age) has been removed. These variations on analysis of variance allow statisticians to apply the general technique to a wide variety of data.

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Analytic Intelligence

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Synonyms

Academic problem-solving skills; Componential knowledge; Fluid intelligence; Implicit knowledge

Definition

Analytic intelligence relates to the mental mechanisms individuals utilize to plan and undertake academic and problem-solving tasks, which are often measured in traditional intelligence tests. Analytic intelligence relies on applying internal mental knowledge to solving novel problems rather than on explicit or learned knowledge from prior experience and/or schooling.

Description

Analytic intelligence tasks typically require an individual to provide a single-correct response to well-defined questions involving new information without utilizing crystallized knowledge, or explicit, declarative knowledge from schooling or prior experience. In this manner, analytic intelligence is similar to Cattell's (1963) notion of *fluid intelligence*. Like fluid intelligence, analytic intelligence challenges an individual to contend with novelty, and to adapt one's problem-solving to a new cognitive problem rather than relying on crystallized skills from one's prior education and experience.

The Ravens Progressive Matrices Test (1962), a classic test of analytic intelligence, consists of a set of visual analogy problems. Each problem presents a 3×3 matrix, wherein the bottom right entry is absent and must be designated from eight response alternative entries which lie below the matrix. Each of these entries normally contains one to five figural elements including geometric figures, lines, or background textures. The test-taker is asked to examine the rows and columns in order to determine which rules will be relevant towards identifying the missing entry. This test benefits from strong stability of individual differences, a relatively large number of items for sufficient theoretical and experimental analysis of problem-solving behavior and correlations with measures of general intellectual achievement.

Sternberg's Triarchic Abilities Test (2003) is a more recent test which delineates analytic intelligence, corresponding to his earlier *componential intelligence*, as one of the key forms of intelligence and as imperative for success in academic pursuits. According to Sternberg, analytic intelligence describes the standard psychometric definition of intelligence as measured by academic problem solving tasks like analogies and puzzles. Sternberg asserts that analytic intelligence is comprised of the joint operation of *metacomponents*, *performance components* and *knowledge acquisition components* of intelligence. *Metacomponents* refer to the higher-order processes which utilize executive functioning skills to order, organize and devise which strategy to use to solve performance components. *Performance components* are the basic operations and cognitive processes which afford test-takers the ability to encode stimuli, store information in short-term memory, formulate calculations, perform mental calculations, and mentally compare diverse stimuli and retrieve information from long-term memory. Finally, *knowledge acquisition components* are used to acquire and store new information as in the process of memorization.

Moreover, analytic intelligence can be divided into three subtypes: verbal analytic intelligence, numeric analytic intelligence and spatial analytic intelligence. Verbal analytic intelligence includes *lexical intelligence*, *phrasiologic intelligence*, *narrative intelligence and conceptual intelligence*. *Lexical intelligence* refers to responding quickly to word problems, for instance determining the anagram for inntlelgiece (intelligence) or completing the following word, "l_ngua_e" (language). *Phrasiologic intelligence* refers to sequencing words in a correct order to form sentences while *Narrative intelligence* relates to sequencing sentences in the appropriate order to form a short story. Finally, *Conceptual Intelligence* involves determining which word does not belong and to evaluate the values and attributes of concepts.

Numeric analytic intelligence relates to arithmetic and the completion of a sequence or matrix of numbers since it is the ability to determine the relations between numbers. For instance, a numeric analytic test question may ask an individual to combine 6, 2, 3, and 4 to form 24. A spatial intelligence IQ is essential to complete larger complex formulas. Spatial analytic intelligence encompasses mental rotation, mirroring, translation, comparing shapes, estimating angles and relative distances. For instance, this ability requires one to observe the relationships between complex formulas in mathematical analyses and shapes in geometry. Spatial analytic intelligence is related to both verbal (words, sentences, text and meaning) and numeric (meaning of numbers) analytic intelligence. Spatial intelligence is considered the most pure intelligence despite including some aspects of numeric intelligence (calculating and comparing numbers of lines or dots).

Finally, with regard to gender distinctions in analytic intelligence, Anastasi (1958), Lynn (1962) and Milton (1957) reviewed findings which suggested that males demonstrate superior performance on spatial and analytic tasks but are less successful on measures of verbal ability as compared to females. These findings suggested that while boys and girls may perform equally on social interaction or communication tasks, boys would rely more on analytic abilities while girls would rely more on verbal skills to successfully complete the tasks. While later studies including Coie and Dorval [2] dispute these gender findings, future research will help divulge these distinctions.

Relevance to Childhood Development

Due to the strong correlation of analytic intelligence to general intellectual achievement, analytic intelligence is an important construct for cognitive development in childhood. Furthermore, since the fluid (cognitive mechanic) abilities of analytic intelligence are thought to constrain or support the acquisition or expression of crystallized abilities (cognitive pragmatics) in later life, it is critical to examine various features of analytic intelligence in early life in order to target the full scope of intelligence and intellectual achievement during the life-span.

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Anastasi, Ann

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Life Dates

1908–2001.

Educational Information

Anastasi studied at Barnard College, and then earned her doctorate at the age of 21 from Columbia University under supervision from Henry Edward Garrett (1894–1973).

Accomplishments

Anastasi taught at Barnard College and Queens College, where she would be the psychology department's chairperson, before joining Fordham University in 1947. It was at Fordham where she would spend the remainder of her long and successful academic career. Anastasi's early mathematical aptitude translated easily into the world of psychological measurement and, influenced by the work of both Leta Stetter Hollingsworth (1886–1939) and Charles Spearman (1863–1945), she developed a nationwide reputation as an expert – as well as a critic – regarding standardized testing.

Anastasi cautioned against the interpretation of test scores as indicative of primarily genetically-based ability and stressed the importance of environment, nurturing, and learning as components of intelligence testing. Long before the boom in test-prep courses for standardized educational assessments, Anastasi wrote of the dangers coaching presented to the integrity of all standardized tests. Anastasi's conception of test validity as a living document of sorts stands in sharp contrast to how tests are often presented to the public. Anastasi was also an early advocate for the cultural relativism of intelligence, arguing that since different cultures value different aspects of the global concept of intelligence, the very concept of a "culture free" intelligence test is a misleading one.

A prolific author with more than 150 publications to her name, Anastasi's most indelible contributions outside of Fordham University were two influential textbooks, *Differential Psychology* (first published in 1937), and *Psychological Testing* (first published in 1954) [2, 3]. These works have appeared in multiple editions, been translated in several languages, and have been used around the globe. References to them still appear in testing literature, and Anastasi's colleagues remember her as an author with justifiable pride in her meticulous attention to both detail and style [1, 4, 5].

A leader as well as an influential author and scholar, Anastasi's multiple professional presidential positions were capped with her 1972 presidency of the American Psychological Association. She was an avid consultant and committee member for both government and private industries, and received honorary doctorates from Villanova University and University of Windsor, among others. The recipient of multiple awards from both academia and professional organizations for her work in testing

and education, Anastasi also received the National Medal of Science in 1987 from President Ronald Reagan.

Contribution

Anastasi enriches psychology with multiple legacies. On the one hand, her important literary contributions to the textbooks of testing and assessment are reminiscent of William James' (1842–1910) contributions to general psychology in that her books are well-written, definitive, and influential upon both practitioners and students alike. Her well-reasoned arguments regarding the misinterpretations of test scores are still timely, continuing the resonance her works still possess. Her many dignified leadership positions provide powerful models for other leaders of professional organizations to emulate, and her list of accolades is astonishing. It is even more astounding that for much of Anastasi's early life, women in the USA faced extreme barriers in pursuing careers in mainstream academic psychology. Anastasi's exemplary accomplishments are even more inspirational within this context.

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Anderson-Fabry Syndrome

►Fabry Syndrome

Androgyny

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Synonyms

Blended gender; Hermaphrodite; Hermaphroditic

Definition

The presence of a high degree of desirable masculine (instrumental) and feminine (expressive) traits in the same individual. A person who does not fit into the stereotypical masculine and feminine gender roles of their society.

Description

Gender roles have traditionally been well-defined constructs with masculinity being synonymous with aggression, independence, and power; and femininity being associated with nurturance, dependence, and an indifference to being in power [8]). However, in the 1970s, alternatives to the "masculine" and "feminine" sex roles were explored [7]. The concept of androgyny emerged as one of these alternatives – showing that as opposed to the stereotyped gender roles of masculinity and femininity being expressed on a continuum, one individual could present with the most desirable traits from both genders. An androgynous individual might be a male who is assertive while being sensitive to the feelings of others, or a female who is dominant but caring [8].

Psychologists have been fascinated with the gender spectrum; thus, shaping the approach to the study of men and women. In fact, psychologists have developed tests to measure the dimension of masculinity and femininity. However, results and the interpretations of Masculinity–femininity measures (M–F) were based on value judgments, such as it is "better" to be on the feminine side if you are female [5]. In other words, the aforementioned tests base measurements of M-F on assumptions, which decreases the validity and reliability of the tests. However, after 1974, scales were developed to measure masculinity, femininity, and androgyny; thus, expanding the perspective of gender identity [4]. One measure that was developed to assess androgyny is the Bem Sex-Role Inventory [7]. Based on one's responses to the items of the measure, an individual could be classified as having one of four gender-role orientations: masculine, feminine, androgynous, or undifferentiated. According to Bem, men and women who are androgynous are more effective, flexible, well-functioning, and mentally healthy than individuals who present with either masculine or feminine traits alone. Additionally, Stake [10] found that androgyny is linked to lower levels of stress and well-being; and Shifren et al. [9] found that emerging adults who were androgynous reported having better health practices such as using seat belts and not smoking than any other gender role classification.

Using a revised version of the BSRI, Hyde and Phillis (1979), as referenced by [4], tested androgyny across a life span. They discovered younger women and older men were more androgynous; therefore, suggesting that

androgyny is a result of developmental changes rather than do to cohort effects. [4] decided to replicate Hyde and Phillis' study, and in doing so, they found contrasting results. [4] found that both men and women were more feminine in older age, which may have to do with increased dependency and unemployment. Many women were also more androgynous in both young and old ages and more masculine between the ages of 21 and 40. On the other hand, men tended to be more androgynous and feminine at all ages than what was previously thought.

Overall, many gender researchers suggest that, as people age, they respond to life more androgynously. In other words, androgynous people do not restrict their gendered behavior to conform to societal expectations. In fact, the older an individual gets, the more flexible, adaptable, and reliable they tend to be [6].

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Anencephaly

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Definition

Anencephaly taken literally, means without a brain but this is too broad of a definition to be accurate. "Cephaly" as in "cephalic" is term referring to the "head" or the "head end (or head most end) of the body." Anencephaly is a congenital disorder in which the cephalic end of the prenatal neural tube, the antecedent structure to the brain, fails to close early in pregnancy [5]. Individuals born with this cephalic disorder are absent a significant portion of the brain, skull and possibly scalp. The brain that is present is missing the cerebral cortex (the neocortex) of the cerebral hemispheres, the mass of the cerebral hemispheres, the subcortical structures of the cerebral hemispheres (the telecephalon and diencephalon) and most if not all of the structures that normally compose the midbrain (the mesencephalon); the brain tissue is often exposed to the environment. The development abnormalities occur very early in pregnancy, typically between the twenty-third and twenty-sixth day of gestation [2]. For instance, an encephalic infant may have a partially developed medulla oblongata to enable respiration [4].

A website maintained by the National Institute of Neurological Disorders and Stroke [3] (the NINDS) describes anencephaly in the following:

> A baby born with anencephaly is usually blind, deaf, unconscious, and unable to feel pain. Although some individuals with anencephaly may be born with a rudimentary brain stem, the lack of a functioning cerebrum permanently rules out the possibility of ever gaining consciousness. Reflex actions such as respiration (breathing) and responses to sound or touch may occur.

This disorder is one of the most common congenital disorders of the prenatal central nervous system (CNS), with about 1,000–2,000 such births occurring annually in the United States, according to the National Institutes of Health. The exact causes of anencephaly are not known but the variation in the sex ratio of affected embryos seems to suggest that there are perhaps two causes of anencephaly, one of which is environmental and predominantly afflicts female embryos. The other causes may be environmental or genetic, and seems to attack different sex embryos in roughly equal numbers [1]. Possible environmental causes are thought to be high levels of exposure to mercury, chromium, nickel and lead.

At present, there is no therapy or treatment for anencephaly and the prognosis for afflicted individuals is poor. Most infants born with anencephaly do not survive birth; individuals who are delivered alive typically die within a few hours or, at the most, a few days after birth, most often from cardiorespiratory crises [2]. The typical clinical response is to offer nutrition, hydration and other palliative measures. Anencephaly can often be diagnosed prenatally via ultrasound examination [4].

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Angelman Syndrome

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Description

Angelman syndrome (AS) is a neurogenetic disorder caused by an abnormality to the maternal chromosome 15. Specifically, the region of 15q11-q13 is mutated or deleted causing the lack of expression of the UBE3A gene. The prevalence for the disorder ranges from 1/12,000 to 1/20,000 births across races and genders [28]. Information about AS has been emerging since the first description in 1965 by Dr. Harry Angelman. In a paper, he described three children having similar symptoms which included abnormal development of the skull, language delay, spurts of uncontrollable laughter, seizure disorder, and jerky movements [1]. Since its first description, over 300 cases of AS have been diagnosed [5].

Genetics

Angelman syndrome is caused by the lack of expression of the UBE3A gene which is located on the critical area (15q11-q13) of the maternal chromosome. This region on the 15th chromosome is called the PWS/AS critical region. Interestingly, another disorder called Prader-Willi Syndrome (PWS) is caused by the same abnormality, but on the paternal chromosome 15 [6]. However, Prader–Willi syndrome has a very different phenotype than Angelman syndrome (see Chapter Prader–Willi Syndrome).

UBE3A is a gene that encodes for a protein that enables an enzyme that facilitates protein turnover. Typically, this gene is expressed on both maternal and paternal chromosomes except in the brain. In the brain, the UBE3A gene is typically activated on the maternal chromosome and inactivated by imprinting on the paternal chromosome in this critical region [29]. This process, genetic imprinting, occurs when genes are expressed differently, depending on whether the genes are inherited paternally or maternally [31]. The absence of the maternal critical region is responsible for Angelman syndrome. Generally, AS is found to occur when there is an abnormality in the critical region on the maternal chromosome and the UBE3A gene function is disrupted. There are four ways the critical region on the maternal chromosome becomes impaired which include: deletion to the critical region, paternal uniparental disomy (PUD), an imprinting defect, and a mutation in the UBE3A gene [32].

The most common genetic cause for Angelman syndrome is a molecular deletion of the critical region on the maternal chromosome and which occurs in 70% of cases [9, 14] This deletion results in the UBE3A gene to be deleted along with four million base pairs [17]. The gene is silenced because it is maternally deleted and paternally inactivated. Individuals with this deletion have the more severe phenotype than their counterparts with AS not due to deletion. Imprinting defects account for 6–10% of AS [17]. Imprinting defects cause a maternal imprinting error. Specifically, the maternal gene assumes the role of the paternal gene and becomes inactivated. Some imprinting defects, specifically imprinting maintenance defects, result in somatic mosaicism [22]. Paternal UPD occurs when the child inherits two copies of the paternal chromosome. UPD is less prevalent and only makes up 3–4% of individuals with AS [7]. In addition, a genetic mutation or partial deletion of the maternal UBE3A gene may cause AS. This only makes up 4–6% of individuals with AS [19]. Lastly, 10–20% of individuals have no signs of genetic mutations to 15q11-q13, but instead have been diagnosed with AS based on presenting clinical features [7, 10, 24, 29]. However, it is possible that some of these individuals may be diagnosed improperly due to shared symptoms with other syndromes. For example, a similar phenotype is observed between those with a deletion of 22q11.3 and a duplication of 15q11-q13 [33].

Diagnosis

A diagnosis for Angelman syndrome is not usually given within the first year because infants are typically born with average birth weights and score within typical development ranges, which obscure other signs of AS. As previously mentioned, the first sign of AS tends to be an unusual electroencephalogram (EEG) reading (diagnostic criteria) [25]. Research has shown 47% of individuals had an EEG before the diagnosis of AS [20]. Angelman

syndrome can be diagnosed 80% of the time with genetic tests such as a high resolution test, fluorescence in situ hybridization (FISH), and methylation analysis. The first test usually done is a methylation analysis because of its ability to give a positive result for a deletion, UPD, or imprinting error. However, the test is unable to detect which of these is the genetic cause. Next, a FISH test or high resolution test will be given to detect any deletions of the critical region on chromosome 15. The high resolution tests are prone to false positives and false negatives, which shows the importance of getting two positive laboratory tests for a genetic diagnosis of AS. The DNA polymorphism test is able to determine if either the paternal or maternal critical regions are deleted. If positive, a second test would need to be done in order to determine whether the diagnosis is Prader–Willi syndrome (deleted maternal critical region) or Angelman syndrome (deleted paternal critical region). In 10–20% of AS cases, there is no evidence for a genetic based diagnosis [10, 24]. In this case, the laboratory tests appear to be typical and evidence for a diagnosis has to come from the clinical features of AS. In addition, an EEG can help diagnose the individual because of its characteristic pattern.

Overall, the diagnosis of AS is important to parents as the genetic basis determines the risk of occurrence of AS in a sibling. There is a 2% risk of reoccurrence with deletion AS and a low risk of reoccurrence for uniparental paternal disomy AS. There has not been a case of recurrent AS due to a typical AS deletion or UPD. In the 10–20% of individuals with AS who do not have a genetic cause, there is the highest chance of reoccurrence and some report a 50% chance [7, 24]. There is one case in which three siblings all inherited the same mutation to chromosome 15 resulting in AS. However, the mother was unaffected as she inherited the mutation from her father and the paternal gene is naturally silenced. Within this scenario, she had a 50% chance of passing that gene on to her children [10, 16]. Given that 5% of the time, it is the mothers who are carriers of the genetic mutation, it is important for parents to get a chromosomal analysis to determine their status [11].

Characteristics of Angelman Syndrome

Individuals with Angelman syndrome display a range of characteristics that differ in severity which is influenced highly by the genetic basis for the disorder [2]. Due to the broad-spectrum of symptoms, characteristics of AS have been split into three categories based on their consistent presentation in individuals with AS: consistent, frequent, and associated. Diagnostic criteria for AS was first produced in 1995 and were updated in 2005 by Williams and colleagues.

Consistent (100%)

- Developmental delay, functionally severe
- Speech impairment, none or minimal use of words; receptive and nonverbal communication skills higher than verbal ones
- Movement or balance disorder, usually ataxia of gait and/or tremulous movement of limbs. Movement disorder can be mild. May not appear as frank ataxia but can be forward lurching, unsteadiness, clumsiness, or quick, jerky motions
- Behavioral uniqueness: any combination of frequent laughter/smiling; apparent happy demeanor; easily excitable personality, often with uplifted hand-flapping, or waving movements; hypermotoric behavior

Frequent (More Than 80%)

- Delayed, disproportionate growth in head circumference, usually resulting in microcephaly by age 2 years. Microcephaly is more pronounced in those with 15q11-q13 deletions
- Seizures, onset usually <3 years of age. Seizure severity usually decreases with age but the seizure disorder lasts throughout adulthood
- Abnormal EEG, with a characteristic pattern. The EEG abnormalities can occur in the first 2 years of life and can precede clinical features, and are often not correlated to clinical seizure events

Associated (20–80%) [32]

- Flat occiput
- Occipital groove
- Protruding tongue
- Tongue thrusting; suck/swallowing disorders
- Feeding problems and/or truncal hypotonia during infancy
- Prognathia
- Wide mouth, wide-spaced teeth
- Frequent drooling
- Excessive chewing/mouthing behaviors
- Strabismus
- Hypopigmented skin, light hair and eye color (compared to family), seen only in deletion cases
- Hyperactive lower extremity deep tendon reflexes
- Uplifted, flexed arm position especially during ambulation
- Wide-based gait with pronated or valugus-positioned ankles

- Increased sensitivity to heat
- Abnormal sleep–wake cycles and diminished need for sleep
- Attraction to/fascination with water; fascination with crinkly items such as certain papers and plastics
- Abnormal food related behaviors
- Obesity (in the older child)
- Scoliosis
- Constipation

Neurological Features. Individuals with AS have a distinct electroencephalogram (EEG) patterns. Although EEG patterns are not all the same for individuals with AS, the characteristic pattern includes rhythmic spiking patterns mainly occurring in the frontal region [20]. Seizures develop 80% of the time in individuals with AS and have been noted to originate in infancy or early childhood [8]. The onset of seizures tends to be earlier, more severe, and occur more often in individuals with a deletion. However, seizures occur in those with both deletion and nondeletion forms of AS. Furthermore, seizures can range in severity from physical trembling of hands and legs to momentary absence seizures. During childhood there are several different types of seizures that can happen which include tonic–clonic seizures, atypical absence seizures, myoclonic seizures, tonic seizures, and status epilepticus. However, myoclonic and atypical absence seizures are most prevalent in adulthood [20, 25] Typically, the seizures tend to subside by age 7–10 [8], but some research reports adults will still likely have reoccurrences of seizures [20, 25]. Regardless of the genetic cause of AS, seizures tend to occur in bursts followed by seizure-free periods that may last months. Seizures are thought to occur spontaneously, but may be elicited by physical activity, fatigue, excitement, infection, and fever [20, 25]. Seizures are hypothesized to occur due to abnormalities of the $GABA_A$ receptor system for which coding lies in the critical region of chromosome 15 [25]. The diagnosis of epilepsy can be difficult due to abnormal jerky movements displayed by individuals with AS. Furthermore, it is possible seizure disorders may be unnoticed or over diagnosed [25]. Additionally, brain development seems to be altered as recent MRI data show that there are delays in myelination and abnormalities in cortical development.

Physical Features

The most prominent physical features of individuals with AS include the inability to manage muscle movements (ataxia), lack of physical development, distinguished facial features, delayed walk, and hypopigmentation. The physical features of AS differs according to the genetic cause of the disorder. Individuals that have a deletion have more severe physical symptoms of AS, while individuals with an imprinting error or UPD tend to have a later onset and less severe physical features.

Physical Development. In almost every case, a child with AS has typical fetal movements, normal levels of amniotic fluid, with a typical birth weight and head circumference. However, parents note the infant tends to be 7–10 ounces lighter than siblings without AS [10]. Although there are no signs of developmental delay at birth, in 100% of cases there is a visible developmental delay between 6 and 12 months [32]. Overtime the child's growth slows and a child may have a smaller head, which may result in microcephaly. Research reports 90% of children with the deletion have microcephaly, compared to 33% of individuals with nondeletions [21]. In addition, it is common for the back of the individual's head to be flattened [21]. Growth retardation is found in 50% of individuals with deletion AS and only in 10% of nondeletion cases [8]. However, height is not severely affected as many adults will be in the normal height range.

Walking. Physical functioning can be highly affected due to a movement disorder found in individuals with AS which constitutes of tremor-like movement of the arms and the legs. These tremor movements likely impact some daily functions such as eating, reaching for objects, and walking. Significant developmental delays are observed in children with AS. On average, children with AS sit at 12–20 months of age and crawl at 22 months [5, 8]. Individuals with nondeletion form of AS start walking, on average, at 2½ years, while individuals with deletion form of AS begin to walk, on average, at 5 years of age [21]. Approximately 10% of individuals with AS never learn to walk [10]. For those individuals who are able to walk, walking is characterized by a distinct gait. Specifically, the arms are lifted, elbows are bent, and hands are turned downward [8, 24]. It is this gait that resulted in the use of the antiquated term "happy puppet syndrome" [14].

Facial Features. Facial features include a pointed jaw, large mouth, spaced teeth, deep set eyes, thin upper lip, and a protruding tongue which is more noticeable when children laugh and may cause excessive drooling. Individuals with deletion AS can have hypopigmentation which includes lighter hair, skin, and eyes. This feature is only found in those with the deletion because the pigment gene, which causes the melanin synthesis, is also deleted [18]. In addition, infants may have a hard time sucking and coordinating tongue movements, which may inhibit infants from getting the nourishment needed [8]. In some instances, infants are diagnosed with failure to thrive.

Beyond infancy, obesity may be problematic. Obesity rates rise from 15% in deletion cases to 50% in nondeletion cases [21].

Behavioral Characteristics

Happy Demeanor. One distinct behavior individuals with AS display is an uncontrollable laughter and an excessive happy demeanor. Many times this "burst" of laughter may be at an inappropriate time and research has shown laughter and smiling occurs more than their counterparts [15, 23]. This excessive happiness can be detected as young as 4–6 weeks as infants smile frequently, with laughter outbursts starting at 10 weeks [8]. There have been mixed reports about the frequency of excessive laughter and smiling (range of occurrence in 57–96% of individuals) [8, 28] Laughter has been noted to occur more frequently before and after seizures and may not always be contextually relevant. Nonetheless, this level of laughter may be heightened by social interaction [15]. Interestingly, research has found that adults with AS smiled and made eye contact more with individuals also diagnosed with AS than individuals diagnosed with other developmental disabilities [23]. Laughter is a behavioral characteristic that has an unknown cause and more research needs to be done to explain why this behavior may occur.

Hypermotoric Activity. Hypermotoric activity is a very common characteristic displayed by children with AS and may be noted as early as infancy and toddlerhood. This activity may manifest as rapid activity change and continuous mouthing of toys [5]. When children are engaged in these activities, they appear to have difficulty attending to social and environmental cues. Consequently, this creates a lack of social interaction which may contribute to language deficiencies associated with AS and may create barrier to learning alternate forms of communication such as sign language, or gestures. Other behaviors such as hand flapping, biting and grabbing others tend to increase as hyperactivity increases. However, hyperactivity seems to decrease with age [9]. Many children with AS do not need medication for these symptoms as they will subside, but behavioral modifications may help reduce unwanted behavior.

Sleeping Problems. Sleeping disturbances are considered an associated characteristic in individuals with AS and have shown to affect between 20 and 80% of individuals with AS. Sleeping disturbances have been speculated to be caused by disruptions in the GABAergic system (see seizure section) [26]. Research shows individuals with AS get a reduced total amount of total sleep (5–6 h), take longer to fall asleep, have frequent night awakenings, and experience less REM sleep with more leg movements than those without AS [4, 8, 26]. The delayed onset of sleep may be due to night rythmias, unstable circadian cycles, and jerky movements before falling asleep [26]. Sleeping disturbances may come in spurts followed by a period of relief from these abnormal sleeping patterns. Despite, these sleep characteristics, some research reports those with AS do not experience drowsiness throughout the day suggesting that individuals with AS may need less sleep than their counterparts. Additional sleep difficulties include problem behaviors such as destroying bedroom furniture [8]. Sleeping problems tend to be worse in childhood and may diminish as adolescence or adulthood approaches [8]. Although decreasing severity and presentation of symptoms are reported as those with AS age (e.g., sleep difficulties, behavior problems), there has not been research to support that increased sleep is responsible for the reduction of these and other characteristics of AS [26].

Activities Enjoyed. Individuals with AS tend to have a heightened attraction to water. Research shows individuals with AS have a higher preference for water than individuals with Down syndrome and other developmental disabilities [13]. Those with AS are often observed jumping in water fully-clothed and going into bodies of water, such as swimming pools and lakes whenever there is an opportunity [8]. In addition, individuals with AS tend to have a love for any shiny or reflective objects. Finally, individuals with AS are reported to also enjoy social activities, humor, and television [9, 29].

Cognition and Language

Speech and language development is contingent upon the genetic basis of AS. Many individuals with AS are not able to speak or may have up to four words [5]. Research has shown that out of 83 individuals with AS, 30% could not speak and 70% were able to speak 1–6 words [8]. However, in some atypical AS deletion cases, those individuals with AS are able to speak 20–30 words. Few individuals with mosaic form of an imprinting center have been noted to speak in simple sentences and over 50 words [22]. This language deficit is apparent early in development (lack of cooing and babbling in infancy and decreased crying and vocalizations in toddlerhood). Toddlers with nondeletions may begin to use nonverbal communication to indicate wants, but hyperactivity creates teaching alternate ways to communicate difficult. Individuals with AS use nonverbal skills mainly for manding (requesting and refusing items) and individuals with AS have a significantly lower ability to tact (label) items, echo and imitate other individuals nonverbal cues compared to other individuals with severe and profound mental retardation [12]. Some less severe cases of AS may learn how to use visual aids and some sign

language, but this is very difficult for children who are more severely affected and unable to establish eye contact with another. Individuals with AS have more success with receptive language and commands [9].

Developmental tests show individuals with AS have a limited range of functional abilities with a developmental level between 24 and 30 months and are often diagnosed with severe to profound mental retardation [27]. Determining the developmental level of individuals with AS is a complicated task due to the lack of speech, hyperactivity, and movement disorders. Furthermore, test scores may be lower than actual functioning and cognitive levels. Adaptive skills are limited as individuals with AS need assistance when taking a bath and getting dressed. Some individuals can be toilet trained, but rarely toilet trained at night [9]. Individuals with AS require supervision at all times given their compromised ability to appreciate danger [9].

Treatment

Angelman syndrome does not have a cure, but many of its symptoms can be treated. One of the most commonly treated symptom of AS is seizure disorders. Seizures can be treated with medications such as valproic acid, topiramate, levitiracetam, and clonezapam. However, carbamazepine has been shown to have paradoxical effects. Many times seizures will decrease with age due to correctly identifying the most effective medication for that particular individual. In addition, a ketogenic diet, which includes consuming four times more fat than protein or carbohydrate at each meal, has been noted to help with refractory epilepsy [30].

Melatonin has been shown to help individuals with sleep disturbances. Research has found melatonin helped eight children with AS start sleeping sooner, decreased sleep latency, and increased the total amount slept. In addition, the number of times individuals woke up during sleep was reduced [3]. However, melatonin has also been ineffective in some individuals [24]. It is important to note the use of melatonin is still a debated issue and more research needs to be done in order to understand the best candidates for melatonin and specifically, the sleeping problems melatonin will help alleviate. In addition to melatonin and medication use, behavior therapy may aid in addressing sleep disorders. Behavioral therapy includes establishing a bedtime routine, finding alternate appropriate activities for the child to engage in while the family sleeps, and finding environmental connection for each individual's sleeping characteristic.

Language development can be difficult and there has not been a specific therapy that has shown to produce effective increases in language. In a few cases of AS, individuals are able to use Picture Exchange Communication System (PECS) or augmented communication devices. Individuals can understand commands given to them and are most successful at this type of communicative approach. Barriers such as hypermotoric activity can cause difficulty when teaching language and new skills making language acquisition easier for older patients with a higher ability to sustain attention [9]. There is some suggestion that massage and aromatherapy can help reduce hypermotoric activity. It is also important to continuously reinforce individuals for gaining new skills and for appropriate behavior [9].

Physical therapy can help the development of walking and other gross motor skills. This further helps individuals from having obesity and creates a healthier lifestyle. In addition, braces can help individuals walk. Other treatments include simple changes that can have a large impact. Bottle feeding can be more effective than breast feeding due to the sucking and difficulty in coordinating mouth movements [8]. In addition, individuals with hypopigmentation have a high risk to sunburn and sunscreen should always be used.

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Anger

▶Aggression

Angiokeratoma Corporis Diffusum

▶Fabry Syndrome

Anguished

▶Grieving

Angular Gyrus

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Definition

The angular gyrus is a convolution of the inferior portion of the Parietal lobe that plays an integral part in aspects of language, cognition and achievement, including reading, writing, and mathematical calculations [6].

Description

The Angular Gyrus is a convolution of the inferior parietal lobe that presents as a connecting point of a Parieto–Occipito–Temporal origin. As such the Angular Gyrus represents a cortical association area that provides cross-modal integration of visual, tactile, and verbal information [7]. From a functional standpoint, the Angular Gyrus has been shown to play a vital role in reading, writing, and mathematical calculations [6]. Linkage of the Angular Gyrus with such specific abilities has been best exemplified through lesions analysis. For example, lesions in the dominant hemisphere (i.e., that hemisphere in which language is predominantly housed) that impact the Angular Gyrus may result in alexia (i.e., impairment in reading) and agraphia (i.e., impairment in writing) [4]. This is due to the fact that transmission of neuronal impulses that allow such abilities to be carried out must pass through the Angular Gyrus. For example, reading requires information to be sent from visual areas in the Occipital lobe through the Angular Gyrus and from there to Wernicke's area, which allows one to read silently or, through anterior transmission by way of the Arcuate Fasciculus and in conjunction with Broca's area, which allows one to reads out loud [5]. In regards to writing, the transmission is carried out in a more anterior to posterior direction in which Broca's area works in concert with temporal regions to decipher what is to be written then by transmission through the Angular Gyrus as well as motor systems involved in writing, involvement of the Occipital and Parietal regions allows for the process to be carried out [7]. Given its' involvement in reading and writing, the Angular Gyrus has been proposed as an essential component of the holistic domain of language. One of the most accepted models of language is the Wernicke-Lichtheim-Geschwind (WLG) model, which is an expansion of the WLG. Although the Wernicke-Lichtheim model accounted for oral (i.e., spoken) and aural (i.e., heard) language it could not account for visual language, which involves reading and writing. The model was expanded by Geschwind to include the Angular Gyrus which was proposed to provide the basis for visual language, as its location at the junction between the Temporal, Parietal, and Occipital lobes allows the Angular Gyrus to efficiently receive projections from primary and secondary visual areas, while also providing a region in which associations with anterior circuits may be made [2]. While the Angular Gyrus is mostly related to reading and writing, lesions of this region have been linked to a cluster of symptoms together referred to as Gerstmann Syndrome, which not only involves agraphia and acalculia but also right–left confusion/ disorientation, and finger agnosia [6]. While Gerstmann Syndrome and the idea of it originating from isolated lesions of the Angular Gyrus have received a fair amount of attention, an array of newer research suggests these four symptoms do not occur together as a unitary syndrome, although large lesions of the posterior Parietal lobe, not the Angular Gyrus specifically or singularly may produce such an arrangement of symptoms [1]. While the idea of Gerstmann Syndrome has proposed an extension of the functions the Angular Gyrus plays a role in (i.e., reading and writing) anomic aphasia and alexia with agraphia have also been associated large left-sided lesions in the Angular Gyrus with, in addition to those symptoms associated with Gerstmann Syndrome [3].

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Angular Gyrus Syndrome

►Gerstmann Syndrome

Anhedonia

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Synonyms

Dysphoria; Melancholy; Unhappiness

Definition

The word anhedonia acquires its meaning from the Greek works *an-*, without, and *hedone-*, pleasure. Anhedonia is

an inability to experience pleasure from normally pleasurable life events (e.g., eating, social interaction, sexual activity, etc.).

Description

People who suffer from anhedonia may feel an intense sadness for no apparent reason. Furthermore, an individual may lack motivation, become more apathetic, feel tired and display feelings of irritability. In more severe incidences of anhedonia, individuals may develop a feeling of helplessness and/or hopelessness. Anhedonia is recognized as a core clinical feature of the mood disorder Major Depressive Disorder according to both the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision) (DSM-IV-TR, [1]) and the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10, [7]). As criteria for the diagnosis of Major Depressive Disorder, anhedonia is described as a significant reduction in a person's level of interest in or pleasure derived from most activities, nearly every day for a 2-week period of time (DSM-IV-TR, [1]). It is important to note that not every individual who experiences anhedonia suffers from Major Depressive Disorder or another mental health disorder. Anhedonia is also seen in Schizophrenia, Schizoid Personality Disorder, individual's experiencing substance abuse withdraw, and other mental health disorders [5].

Current research has linked anhedonia to a break down in the brain's Central Reward Pathway. The brain is divided into several distinct regions that are each responsible for performing different functions. The brain can perform highly specialized functions in these regions due to cells called neurons. Neurons are the cells responsible for passing chemical and electrical signals along the pathways of the brain. Of these specialized regions, the ventral tegmental area (VTA) and the nucleus accumbens (NAc) play central roles in the processing of rewarding environmental stimuli and in drug addiction through the release of a neurotransmitter (chemical) called dopamine [5]. Furthermore, in the mesolimbic region of the brain, dopamine-sensitive neurons project from the ventral tegmentum into the medial prefrontal cortex, amygdala, and ventral striatum regions. Reduced activity in the striatum may lead to a failure of the prefrontal cortex to process rewarding experiences due to a decrease in the release of dopamine or an increase in neurons tolerance for dopamine. It is thought that disruption in these areas inhibits the brain from positively reinforcing typically pleasurable life experiences, thereby forcing the brain to interpret characteristically pleasurable experiences as neutral experiences [6].

Relevance to Childhood Development

Anhedonia is typically seen in children who also meet the criteria for Major Depressive Disorder and other affective mental health diagnoses. After years of controversy, professional consensus supports the notion that young children can indeed suffer from depression. Moreover, they tend to exhibit symptoms that are strikingly similar (although not identical) to those of older adolescence and adults with depression. Several empirical research studies of depressive phenomenology have subsequently provided evidence that depressed prepubertal children could be identified using the adult *DSM* classification criteria [3]. However, depression can be difficult to diagnose during prepubertal years, because these children cannot yet verbalize their feelings or inner experiences. Although researchers have noted that children can "mask" their depressive symptoms, the majority of children suffering from Major Depressive Disorder present with an anhedonic affect [2].

Anhedonia in the early elementary school years is often expressed through behavior problems, whereas older preadolescents and adolescents may begin to verbalize feeling of hopelessness and decreased enjoyment from previously enjoyable activities. Additionally, school and peer relationship problems are more commonly seen after the age of six. Children with anhedonia are more likely to be rejected by their peers, be perceived as less likable, and have more negative social behaviors than their peers who do not display anhedonia. Anhedonia can interfere with the formation and maintenance of healthy friendships and further solidify the child's depression and/or anhedonia [4].

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Animism

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Definition

Animism is the belief that biological and physical phenomena in the natural world possess conscious intentions and purpose. Thunder, for example, is considered to be the voice of a god, or the moon is a conscious being whose movement is animated by its personal intentions.

Description

The term was popularized in 1871 by E.B. Tylor in his work, *Religion in Primitive Cultures* [4]. Taylor is considered one of the founders of the discipline of anthropology who, following the impetus of Darwinian theory, sought to provide an account of the cultural evolution of religion. Animism, he argued, represents the first, earliest stage of religion, which is found in "primitive peoples" who have no systematic religious doctrine or scripture, who believe that the universe is alive with spirits, souls and supernatural intentions. From this primitive beginning, later, more sophisticated religious beliefs derive. He also argued that animism is the antithesis of materialism, which is a much later developed form of thought that recognizes that biological and physical factors, not spirits, are responsible for the causes and consequences found in the natural world [4].

The investigations by Tylor and other early anthropologists in the nineteenth century influenced the psychological theorists of the twentieth century, notably Freud and Piaget. Freud argued that thought consists of primary processes, which are id driven, seek immediate gratification, and are instinctual; and secondary processes, which are ego driven, seek rational accommodation with objective reality, and develop later. Animism and magical thinking are characteristics of primary process thinking, as id driven wishes and desires are projected onto external reality. These distortions of reality are mitigated and overcome with the development of secondary process characteristic of rational thought. Freud argued that this ontogenetic developmental trajectory parallels the phylogenetic evolution of cultures, from animism to rationalism, described by anthropologists [1].

Piaget addressed animism in his early book, *The Child's Concept of the World*, which has had the most significant impact on developmental research on this topic [2]. Piaget argued that young children are egocentric in their thinking and therefore presume that the world, like themselves, is animated by conscious will and intentions. All things are endowed with life, and movement or activity of any kind necessarily entails purposefulness. As children develop, Piaget asserts that their thought becomes more decentered, and the boundaries between their own experience and that of the world become more differentiated. With development, children's thinking becomes less animistic, more reasoned, and they appreciate that the physical world is governed by material principles, not conscious purposes. Piaget leaves open the question of the relation between the anthropological cultural-evolutionary accounts of animism and his own investigation of ontogeny, but he does consider it an issue worthy of scrutiny [2].

These early social scientists shared a presumptive progressive-evolutionary framework, and considered animism a quintessential expression of primitive thought that is overcome and replaced by more advanced critical, rational processes. Contemporary research, however, no longer shares this framework and animism, thus, no longer serves as a theoretical cornerstone. Consequently, the topic has received much less research attention. Recent research, however, suggests that animism is less pervasive and profound than originally proposed by Freud and Piaget. Young children do, indeed, possess animistic thinking, but they are less egocentric, are capable of much more sophisticated understanding of causality at an early age, and develop sophisticated reasoning skills much more quickly than previously believed [3, 5].

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Announcement

▶Media

Anomia

▶Dysnomia

Anomic Aphasia

►Childhood Aphasia

Anorexia

►Anorexia Nervosa

Anorexia Nervosa

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Synonyms

Anorexia; Anorexic; Eating disorder; Emaciation; Malnourishment; Starving; Without appetite

Definition

Anorexia Nervosa (AN) is an eating disorder primarily affecting adolescent girls and young women (although anorexia in adolescent boys and young men is becoming more prevalent), characterized by pathological fear of becoming fat, distorted body image, emaciation, and excessive dieting.

Description

Anorexia Nervosa (AN) is a form of self-starvation to the point of emaciation. A person must maintain a significantly low body weight (15% below normal body weight for height and age) in order to be diagnosed with AN. He or she must also be continually preoccupied with food and its nutritional values (i.e., calories, fat grams) for fear of gaining weight. This irrational fear of weight gain may cause the person to control his or her eating by skipping meals and starving his or herself, which can lead to hospitalization and sometimes death. Another key symptom of AN is a distorted body image manifested through thoughts, feelings, and perceptions of being overweight, when in reality, the person is extremely thin. A person with anorexia does not see an accurate picture of him or herself when looking in the mirror. Rather, they see themselves as overweight, regardless of their appearance. Amenorrhea, or the absence of at least three menstruation cycles, is also a symptom of AN, but does not apply to males, prepubescent females, or females on birth control.

A common index used to diagnose AN in adults is the Body Mass Index (BMI), a measure of body fat estimated by an individual's height and weight. A BMI of 17.5 or below is a common guideline used for diagnosis. However, this same BMI is translated into percentiles for diagnosing and assessing children and adolescents [1]. AN can affect all parts of a person's life, particularly their social relationships, school performance, and family relationships. Without treatment, it is likely a person with AN will suffer from medical and psychological consequences throughout his or her life. Deaths related to AN are most often due to medical complications (about 50% of cases) compared to suicide (30%) and unknown causes (20%) [3].

There are currently two subtypes of AN, the binge/purge subtype and the restricting subtype. The binge/purge subtype is characterized by episodes of overeating followed by purging behaviors, whereas the restricting subtype severely limits his or her intake of food. However, this classification is controversial as it has not been proven by empirical research. Instead, it is based on expert agreement regarding what is known about the disorder [5]. Researchers have also found the classification system limiting because it restricts the ability to examine the AN spectrum [5].

Physical repercussions of the binge/purge subtype include malnutrition, dehydration, ruptured stomach, organ damage (including heart, kidney, and liver), tooth/gum erosion, and esophageal tears. Psychological consequences for both subtypes include depression, low self-esteem, guilt, shame, impaired family and social relationships, mood swings, and thought disturbances [4].

AN is a serious disorder, affecting nearly seven million women and one million men in the United States alone [4]. About 86% of people with AN report an onset of symptoms prior to the age of 20 whereas about 10% report an onset at age 10 or younger. Approximately 16% of people with AN report having symptoms that last between 10 and 15 years, whereas 30% report symptoms lasting between 1 and 5 years. Six percent of serious cases end in death and 50% of cases report being "cured" [4].

Relevance to Childhood Development

Childhood anorexia is uncommon, as about 4–8% of all cases reported an onset in early childhood with an incidence of 0.15 new cases in 100,000 per year in 2000 [2]. Anorexia in male children (prepubescent; 26–28%) is significantly higher than anorexia in male adolescents (postpubescent; 4–6%). Childhood AN can be difficult to diagnose because children are at a much different

developmental level than adolescents and adults. A child may lack a full understanding of what it means when he or she does not eat. Even while a child's current weight may appear to be proportionate to his or her current height, he or she is still physically developing, so stunted growth is a possibility, especially if the child is suffering from anorexia. In this situation, the child would need careful monitoring by a pediatrician using a growth chart. Children with AN also tend to present physical symptoms such as nausea or feeling full more often than adolescents and adults [4]. With the exception of amenorrhea, children generally exhibit similar symptoms as adults and adolescents with AN.

Major life events, such as the birth of a sibling, moving, or death, are often precursors to the development of childhood AN. These events might lead the child to feel a loss of control or sense of safety, to which the child may respond with food refusal, weight loss, and, possibly, Anorexia Nervosa [2].

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Anorexic

►Anorexia Nervosa

Anorthography

►Spelling Disabilities

Anosmia

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Definition

In general, the term anosmia is used to refer to the inability to discriminate or detect qualitatively different olfactory sensations, or in simpler terms, an absence of one's sense of or ability to smell [6, 19]. Related terms include partial or specific anosmia, which refer to deficient ability to detect a specific odorous stimulus or a limited class of odorous stimuli [6, 10, 19]. A fairly large number of specific anosmias have been identified [1, 10]. The terms hyposmia or microsmia have also been used to label instances of decreased sensitivity to odorous stimuli [19, 22].

As with most any trait or ability, individuals show variability in their capacity to smell [9]. Some deficits in our olfactory sense are probably normal [4] and it is generally agreed that females report more acute sensitivity to odors than males [3, 12]. It is also reported that a likely majority of humans will experience measurable deficits in their olfactory sense as a function of aging [6]. The ability to smell can be impaired or disrupted by a number of conditions, such as lesions to the brain, particularly of the orbitofrontal cortex area [11, 13]. Blows to and injuries of the head are often followed with deficits in olfaction as the olfactory nerve is easily lacerated [19]. Severe sinus infections can result in total or partial anosmia, as can exposure to some chemicals [6, 8, 19]. An impaired ability to identify odors has been found co-occurring with disorders such as Alzheimer's disease, Huntington's disease, Parkinson's disease, Korsakoff's psychosis, chronic alcoholism, HIV infection and schizophrenia [2, 7, 17, 18]. It is clear that the vast majority of anosmia cases are acquired deficits [6]. The incidence rates of these olfactory deficits range from an estimated 1 to over 50% of the population under and over age 65, respectively [19]; other published reviews reported 67% of some population samples displaying measureable disruptions of the ability to smell, with slightly over 31% showing a complete loss of smell [6].

There is sparse information regarding any genetic or ►congenital basis for anosmia; the main genetic syndrome associated with anosmia is Kallman's syndrome in which there is either a disruption of the requisite prenatal migration of ►neurons from the brain to olfactory structures and or insufficient or absent neuronal synapses

in the olfactory structures and pathways [6]. Kallman's syndrome is a rare condition, with incidence rates found to range between 1 in 10,000 and 1 in over 80,000 persons [21].

The research connections between olfactory dysfunction and the putative effects of as yet to be identified human pheromones have been termed provocative [7] as well as disputed [14]. Despite studies showing evidence of a physiological effect [15, 16, 20], there is little evidence for any actual changes in human behavior resulting from alleged pheromones [14]; although humans do possess most of the same structures involved in the actions of pheromones in other mammals [5], the human circuitry has sparse neurons, few if any neuronal connections to the brain and is likely more vestigial than functional [5, 7].

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ANOVA

►Analysis of Variance

Anovular Cycle

►Anovulatory Cycle

Anovulation

►Anovulatory Cycle

Anovulatory Cycle

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Synonyms

Anovular cycle; Anovulation; Estrogen breakthrough bleeding; Estrogen withdrawal bleeding

Definition

A menstrual cycle during which no egg (ovum) is released.

Description

In an anovulatory menstrual cycle, a woman does not release an egg (ovum), resulting in an infertile cycle. The subsequent release of the uterine lining is known as anovulatory bleeding, rather than menstruation. This condition may happen for many reasons, all of which are linked to atypical levels of estrogen, luteinizing hormone (LH), or follicle stimulating hormone (FSH).

The first half of a normal menstrual cycle is concentrated around increasing the uterine lining (endometrium) and releasing an egg. FSH enables immature eggs housed in the ovary to develop. As these eggs mature, estrogen is released. The rise in estrogen triggers the pituitary gland to release LH rather than FSH. The LH surge causes the most mature egg to be released from its ovarian follicle. The empty follicle is now known as the corpus luteum and releases progesterone, a hormone that will be necessary to maintain a pregnancy. The subsequent series of events depend on whether the released egg is fertilized or not.

In an anovulatory cycle, there is enough estrogen to build the uterine lining, but the hormone ratios necessary for ovulation are absent. Anovulatory bleeding occurs because of a drop in estrogen or because the endometrium is no longer self-sustaining. Although the flow is irregular, a woman may not be able to tell the difference between an ovulatory versus an anovulatory cycle.

Anovulatory cycles happen to every fertile woman at some point in time; however, there are developmental periods when such cycles are more frequent. During early adolescence, anovulatory cycles are very common as the young girl's body slowly develops its ability to regulate hormone levels and maintain predictable menstrual cycles. Anovulatory cycles also are experienced by women who are pregnant or consistently breastfeeding, as both activities suppress the release of estrogen. In later years, anovulatory cycles can precede menopause, a period when estrogen levels drop and a woman's body is less responsive to LH and FSH.

In addition, any behavior or situation that impacts hormone levels can result in anovulatory cycles. For example, stress, illness, strenuous exercise, and travel have been linked to anovulation. Being underweight or overweight can interfere with estrogen levels and thus cause anovulatory cycles. Women who stop using a hormone-based birth control method (e.g., birth control pills) may experience anovulatory cycles as their body works to resume control of the natural feedback system that regulates hormone levels. Last, anovulatory cycles also may result from serious medical conditions, such as polycystic ovarian syndrome (PCOS) or thyroid disease.

Depending on the cause, anovulatory cycles may be a temporary or lasting condition. Most cases can be diagnosed by a health care provider and are treatable.

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Anoxia

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Synonyms

Anoxic episode; Anoxic ischemia

Definition

Anoxia is the termination of the oxygen supply to an organ's tissues despite sufficient blood flow to the tissue.

Description

Anoxia is a condition that occurs when there is a loss of oxygen to the organ's tissues despite the tissue receiving adequate blood flow [4]. Oxygen depriving conditions include smoke or carbon monoxide inhalation, cardiac and respiratory failure, complications with anesthesia or exposure to high altitudes, poisoning, near-drowning, and survival following an attempted hanging or strangulation [4, 5].

The brain is more dependent on oxygen than most other organs and also lacks the ability to regenerate cells after cell death. Therefore, brain damage can occur if an anoxic episode lasts longer than 5 or more minutes. An airway must be established immediately to continue supporting the individual's respiratory and cardiovascular systems and to prevent fatality. If these systems are supported, recovery is possible [4]. During the recovery process, a patient may experience psychological and neurological symptoms including dementia, psychosis, confusion, personality degeneration, amnesia, hallucination,

parietal lobe syndromes, and memory loss [4, 5]. Persons who endure less severe anoxia may experience impaired learning ability and challenges with the retrieval of previously stored information. Severe anoxic episodes can result in a permanent comatose state or fatality.

Relevance to Childhood Development

The period surrounding birth holds the greatest risk for an anoxic episode. Anoxic episodes can occur during the gestational, parturitional, and neonatal stages [5]. Gestational causes of anoxia include maternal cardiac arrest, infectious disease, diabetes mellitus, pre-eclampsia, toxemia, and severe anemia or bleeding by the mother. Parturitional causes include an abrupt fetal separation from the placenta, placental compression, birth trauma, cord accidents (e.g., cord wrapped around neck) or placenta previa. Neonatal conditions include perinatal brain trauma, traumatic injury to the lungs, and pneumonia. Fortunately, most infants survive an anoxic episode with few neurological complications [5]. Level of impairment and survival is dependent upon the amount of time the infant experiences the anoxic episode. The most severe consequences of anoxia include the motor features of cerebral palsy, mental retardation, and seizures.

Sequelae of an anoxic episode early in life may be expressed in later childhood. Effects can include deficits in cognitive, executive, and physical functioning depending upon the region of the brain affected and the extent of the oxygen deprivation. For example, damage to the basal ganglia can produce motor slowing [1], while damage to the hippocampus can cause impaired memory for new information as well as attentional difficulties [1]. Severe damage to the brainstem can result in visual and auditory disorders [2, 5, 6]. While research has suggested that anoxia can place an infant at risk for a wide range of deficits, an anoxic episode alone is not a strong predictor of later childhood disability [5].

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Anoxic Episode

►Anoxia

Anoxic Ischemia

►Anoxia

Antagonism

►Aggression

Antecedent Management of Behavior

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Synonyms

Preventive intervention; Stimulus control

Definition

Antecedent management is a type of therapeutic intervention that changes child behavior by manipulating conditions that precede such behavior.

Description

Antecedents to child behavior include the physical environment, such as the arrangement of desks in a classroom, and interactions with other people, such as a parent giving an instruction or making a request. When behavior

that occurs in the presence of antecedent conditions is reinforced or punished, these conditions become a source of control. Referencing the preceding examples, children may be disruptive in the classroom if they sit at a desk in close proximity to other students who do not pay attention. Similarly, children may respond inappropriately when their parents present instructions that are unclear or stated harshly.

A first step toward antecedent management is verifying a predictable antecedent-behavior relationship. Consider a situation in which children have difficulty playing together when they have access to certain toys or games. It may be that these objects foster aggressive actions because they are associated with violent themes. Or, there may be little to no adult supervision of the play activity. If the children's negative play behavior occurs consistently under such conditions, several antecedent management procedures may be indicated. To illustrate, the children could be given toys and games that facilitate cooperative social interactions. Another option would be having an adult watch the children intermittently and praise them when they play positively.

Compared to other operant procedures, antecedent management has a prevention focus because it does not rely on imposing consequences when children demonstrate problem behaviors. That is, the basis of intervention is to eliminate the conditions that historically provoked or set the occasion for the problem behaviors.

Relevance to Childhood Development

Children learn quickly the conditions that predict the consequences of their behavior. A disdaining look from a teacher may indicate that there is too much commotion in the classroom. At home, a parent may post notes specifying chores that need to be completed. These and similar antecedent conditions acquire stimulus control over behavior because they "signal" events that children desire and wish to avoid. Furthermore, antecedent influences affect children's motivation. For example, permitting a child to watch a favorite television show upon completing homework assignments is more likely to function as an incentive if she/he did not watch television previously during the day. The concept of *establishing operations* explains a type of antecedent management that affects motivational states.

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Anterior Frontal Lobes

▶Prefrontal Cortex

Anthropology

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Definition

Anthropology is a social science that studies the human being; involving itself with such things as the origin, behavior, language, physical characteristics, culture, social organization, development and interrelations of mankind.

Description

Anthropology concerns itself with many aspects of the human being. It is interested in the earliest forms of mankind and its evolutions. Evolutionary facets of interest include such things as language, behavior, physical characteristics, culture, government, social organization, etc. Context is very important to the anthropologist as it influences these changes in mankind; such as the way in which environment plays a role in the types of food eaten by a particular people, which in turn influences nutrition and physical growth outcomes.

Anthropologists espouse an approach of study that involves in-depth analysis of subjects such as ethnography. Researchers often become participant observers. Studies in the social sciences, especially anthropology, strive to rid itself of ethnocentric views (ethnocentrism) through the practice of cultural relativism, a concept defined by Franz Boas. In this regard, aspects of your own culture are to be judged or understood only in regard to one's own particular culture. Different ways of being are to be respected and valued, rather than judged. Cultural relativism suggests that is to be understood that there is no universal culture and/or way of doing things.

Anthropologists have contributed a lot to our understandings of the various ways in which cultures vary.

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Anti-Anxiety Medications

►Anxiolytics/Hypnotics
►Valium

Anticipatory Bereavement

►Anticipatory Grief

Anticipatory Grief

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Synonyms

Anticipatory bereavement; Anticipatory mourning

Definition

Anticipatory grief encompasses the emotional, psychological, and interpersonal processes of confronting the imminent loss of a terminally ill loved one. Some authors argue that the term anticipatory *grief* should be reserved for the acute emotional and cognitive reaction to loss, while anticipatory *mourning* is more appropriately used to describe the larger processes of confronting the loss, including grief, coping, planning, and psychosocial reorganization [6]. The term "anticipatory grief" will be used here in a broad sense, referring to all aspects of an individual's response to impending loss.

Description

Erich Lindemann introduced the term "anticipatory grief" in his seminal 1944 article "Symptomatology and the Management of Acute Grief." Since then, the concept has generated considerable controversy – whether it exists, how it differs from post-loss grief, and whether it impedes or facilitates the post-loss mourning process [3, 6]. Anticipatory grief *is* grief, in that it occurs in response to loss. However, it is different from post-loss grief and mourning in several respects. The death being grieved is not in the past, but the abstract (and possibly unimaginable) future. Furthermore, the person being grieved is still present and active in the interpersonal relationship, engendering tension between the normal grief process of decathexis (separation) and the need to remain close. Because of these unique characteristics, anticipatory grief is fertile ground for exploration of key questions about bereavement in general: the nature of "grief work" and when it begins, how and when mourners separate from the dying, and the effects of interpersonal, psychological, and physical pre-loss experiences on post-loss adjustment.

Findings have been mixed regarding the effects of anticipatory grief on post-death mourning [6]. Many studies of the families of terminally ill patients point to the benefits of forewarning and the opportunity to engage in anticipatory grieving, suggesting that awareness of impending loss allows mourners to cherish the remaining time with the patient, assist with care, facilitate a good death, and gradually make cognitive adjustments necessary to navigate the world without the patient. According to these authors, individuals may be able to accomplish some "grief work" before death occurs, easing the burden of post-loss grief. Other studies indicate little or no effect of anticipatory grief on later mourning. Finally, some studies (including Lindemann's original description) warn of possible harmful effects of anticipatory grief. Mourners may prematurely detach from the patient or become emotionally exhausted by alternating grief and hope, thus losing the opportunity to deepen relationships and participate in patient care [4]. Other life responsibilities, such as parenting healthy children, may suffer during the anticipatory grief period, requiring additional reconstruction during post-loss grief [10]. Some studies suggest that a moderate amount of forewarning is ideal, providing mourners enough time to engage in some anticipatory grief tasks but limiting the burdens of extended caregiving [6].

Relevance to Childhood Development

Although some authors have described "anticipatory grieving" of one's own death, typically the individuals of interest in anticipatory grief research are the (adult) family members of terminally ill patients. Fewer studies have examined anticipatory grief in children, but the extant research suggests that important differences are present in the way children and adults understand and prepare for

loss. Young children lack the cognitive ability to understand death; belief that death is final and universal, and ability to imagine a future without the dying person, do not emerge until middle or late childhood [5]. Young children's views of death may be further complicated by well-meaning caregivers who use euphemisms such as "sleeping" or "on a trip." Some young children may even believe they or a sibling are causing the patient's death by wishing he or she would "go away." Older children are able to more fully grasp the abstract meaning of death, but may still differ from adults in their emotional readiness to confront the death of an actual person they know and love.

Given this uncertainty over whether and how children anticipate loss, few studies have compared children who did and did not have an opportunity for anticipatory grief before the death of a family member, and no studies exist which directly measure anticipatory grief in children. However, several authors point to the potentially negative effects of forewarned (as compared to sudden) loss on the later adjustment of bereaved children [7–9]. Many of the benefits of adult anticipatory grief are unavailable to children, including the ability to plan and reorganize in preparation for life without the deceased, the opportunity to deepen relationships through caregiving, and the solace in facilitating a good death. Children are also uniquely vulnerable to the prolonged traumatic effects of forewarned loss: exposure to death, graphic stimuli associated with illness, and the fear and anxiety of caregivers [9]. Furthermore, children's distress during the anticipatory period tends to be underestimated by their parents, resulting in isolation and confusion [7].

Perhaps even more than the direct effects of anticipatory grief, healthy children in a family with a terminally ill member can be negatively affected by the anticipatory grief processes of adult family members. Parents in such a family are overwhelmed with a variety of financial, emotional, and interpersonal stressors, and may have fewer resources to allocate to the needs of their children. In survey research, these parents identify particular concerns in the areas of emotional sensitivity and maintaining consistent discipline for their children while coping with anticipatory grief [10]. When the patient is one of the children, parents' anticipatory grief may be particularly intense and distressing [1], thus further impairing their ability to maintain a stable environment for healthy siblings.

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Anticipatory Mourning

►Anticipatory Grief

Anticonvulsants

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Synonyms

Antiepileptic drugs; Antiseizure drugs; Depressants

Definition

Anticonvulsants are a clinically defined class of medications used to treat various forms of convulsions or seizure disorders. Some of these medications have also been shown to be useful in treating mood disorders, migraine headaches and neuropathic pain.

Description

Anticonvulsant medications are a diverse class of drugs and so we will focus on the general mechanism of action for the majority of the drugs. Seizures are uncontrolled

and rapid brain activity that causes various symptoms which will be discussed in further detail later. This rapid and unrestrained neuronal activity is reduced when ions such as calcium, potassium, and sodium, are stopped from entering the neuron and when the inhibitory neurotransmitter gamma aminobutyric acid (GABA) acts on the cell. By blocking the flow of positively charged ions into the neuron the chances of an action potential are reduced. Similarly, increasing the amount of inhibitory neurotransmitter such as GABA also has a calming effect on neural activity. Another common neurotransmitter is glutamate. This is the primary excitatory neurotransmitter and it is implicated in seizures. Some of the anticonvulsants act to block this neurotransmitter's action at the synapse. Anticonvulsant medications work by these or similar mechanisms and many operate in combination with one-another. It is also important to note that scientists do not fully understand the mechanisms of action for all of the anticonvulsant drugs.

In order to understand the use of anticonvulsant medications one must first comprehend the salient features of a seizure. This is because the child who suffers from a seizure will be treated according to the particular symptoms of their seizures. For this purpose there are classification criteria for seizures. For those who are likely to be around persons who may experience seizures these classifications are important in that they can be reported to the child's physician to treat the seizure with the utmost efficacy. The following descriptions are taken from Weinstein and Gaillard [5].

Absence Seizures These seizures are characterized by a brief behavioral arrest with impaired consciousness. There is no postictal (time immediately following the seizure) period of confusion. The onset for this type of seizure is typically 3–12 years of age. During the seizure the child may continue to perform the task that they were engaged in before the seizure; however, the child will not responds to new information. It is common to notice a glazed eye appearance, abnormal eye blinks, and possible changes in head and extremity tone. The implications for a child suffering from absence seizures are that they may be in danger if they need to react to something in the environment during a seizure, and it may be very hard for the child to learn because of interruptions of consciousness.

Partial Seizures These are the most common type of seizure. They are typically preceded by an aura which is an altered state of consciousness or perception of something in the environment that does not exist. These seizures are usually located at a certain point in the brain and so the child with this type of seizure will usually have the same symptom presentation from episode to episode. The part of the brain affected can include areas of motor control, sensation, behavior and cognitive functions. If the seizure spreads and alters consciousness it is called a complex partial seizure.

Myoclonic and Atonic Seizures These are the briefest types of seizures that alter motor control. Myoclonic seizures are motor attacks that cause a sudden bending backward of the head and torso. These seizures and any other seizure that cause a loss of muscle tone combine to form the class of drop seizures. The person suffering from a drop seizure will suddenly lose consciousness and abruptly fall, without any attempt to protect oneself. It is recommended that people with these types of seizures wear a helmet to protect their head from falls.

Tonic–Clonic Seizures This is the most frightening seizure to observe. It is commonly referred to as the grand mal seizure. These types of seizures may begin focally and then spread to other parts of the body. They can also begin as generalized seizures. The body experiences both clonic motor activity, which is characterized by repetitive jerking, and tonic activity, which is expressed as stiffening of the body. If the clonic activity generalizes to multiple parts of the body then the person is experiencing a Jacksonian seizure. Other common observations of tonic–clonic seizures are irregular breathing, unusual vocalizations, cyanosis, and incontinence.

Febrile Seizures These are seizures that are caused by fever and they are the most common seizure for children to have. Febrile seizures are generally seen when a child's temperature goes above 102°F. They are usually brief symmetric tonic or clonic–tonic events that occur once during an illness.

As referenced in the *Tarascon Pocket Pharmacopoeia* [4], there are no fewer than 20 recognized medications for use in treatment of convulsions. Another pragmatic description of current pharmaceutical interventions for persons having seizures is Simon Shorvon's, *Handbook of Epilepsy Treatment 2nd Edition*, [2]. This text describes no fewer than 25 medications and is complete with information regarding pharmacokinetics, adverse effects, antiepileptic effect, and clinical uses in epilepsy. The reader is referenced to Table 1 for a brief over view of some of the common drugs that are considered safe to use with children who are suffering from seizures. It is not intended for use to prescribe medications and does not included any advanced medical information, it is intended for persons in the field of child development to understand treatments being prescribed by physicians and some side-effects that must be closely monitored.

The *Tarascon Pocket Pharmacopoeia* [4], indicates carbamazepine, lamotrigine, topiramate, and valproic acid as

Anticonvulsants. Table 1 Common medications for treating children with seizures

Medication	Indications	Adverse events	Advantages	Disadvantages
Carbamazepine (Tegretal)	Partial and generalized seizures	Drowsiness, fatigue, dizziness, ataxia, diplopia, sedation, insomnia, tremor, weight gain, rash	Highly effective and usually well tolerated	Adverse effects, especially on initiation of therapy. Possibility of toxicity
Clobazam (Frisium)	Partial and generalized seizures	Sedation, dizziness, weakness, blurring of vision, restlessness, ataxia, aggressiveness, behavioral disturbance	Effective for patients with epilepsy that are resistant to first-line therapy. Considered safer than other benzodiazepines.	Tolerance develops in up to 50% of patients
Clonazepam (Klonopin)	Partial and generalized seizures, neonatal seizures, status epilepticus	Sedation, cognitive effects, drowsiness, ataxia, personality and behavioral changes, hyperactivity, restlessness, aggressiveness, psychotic reaction, seizure exacerbations, hypersalivation, tone changes, leucopenia	Useful action, especially in children	Side-effects, sedation is common, tolerance and withdrawal symptoms
Ethosuximide (Zarontin)	Generalized absence seizures	Gastrointestinal symptoms, drowsiness, ataxia, diplopia, headache, dizziness, hiccups, sedation, behavioral disturbances, psychotic reactions, EPS, rash	Effective for generalized absence seizures; No risk of hepatic toxicity carried by the alternative treatment of valproate	Common side effects
Gabapentin (Neurontin)	Partial or secondarily generalized epilepsy (for children over age 6)	Drowsiness, dizziness, seizure exacerbation, ataxia, headache, tremor, diplopia, nausea, vomiting, rhinitis	Lack of side effects; Good pharmacokinetic profile	Lack of therapeutic effect in severe case; Possible increase in seizures
Lamotrigine (Lamictal)	Partial and generalized epilepsy (for children over age 2)	Rash, headache, blood dyscrasia, ataxia, asthenia, diplopia, nausea, vomiting, dizziness, somnolence, insomnia, depression, psychosis, tremor, hypersensitivity reactions	Moderate effectiveness; Well tolerated	High incidence of rash, commonly severe; Complicated pharmacokinetics
Oxcarbazepine (Trileptal)	Partial and secondarily generalized seizures	Somnolence, headache, dizziness, diplopia, ataxia, rash, hyponatraemia, weight gain, alopecia, nausea, gastrointestinal disturbance	Similar to carbamazepine, but with a different adverse effect profile and less drug interactions	Higher incidence of hyponatraemia than carbamazepine
Phenobarbital (Luminal)	Partial or generalized seizures (including absence and myoclonus seizures), childhood epilepsy syndrome, febrile convulsions, neonatal seizures	Sedation, ataxia dizziness, insomnia, hyperkinesis, mood changes, aggressiveness, cognitive dysfunction, impotence, reduced libido, folate deficiency, vitamin K and vitamin D deficiency, rash, risk of dependence, risk of abuse	Highly effective and low cost	CNS side-effects-especially for children; Controlled drug in many countries

Anticonvulsants. Table 1 (Continued)

Medication	Indications	Adverse events	Advantages	Disadvantages
Phenytoin (Dilantin)	Partial and secondarily generalized seizures (excluding myoclonus and absence seizures), status epilepticus, childhood epilepsy syndromes	Ataxia, dizziness, lethargy, sedation, acute encephalopathy, hypersensitivity, rash, fever, blood dyscrasia, mood changes, myopathy, connective tissue alteration, hepatitis, vasculitis, coagulation defects	Highly effective and low cost	CNS and systemic side effects, non-linear elimination kinetics, drug interactions
Primidone (Mysoline)	Primary and secondarily generalized seizures	Sedation, ataxia dizziness, insomnia, hyperkinesis, mood changes, aggressiveness, cognitive dysfunction, impotence, reduced libido, folate deficiency, vitamin K and vitamin D deficiency, rash	Not a controlled drug, less risk of abuse than Phenobarbital	Side effects
Topiramate (Topamax)	Partial, secondarily generalized, Idiopathic generalized epilepsy (for children over age 2)	Dizziness, ataxia, headache, parathesia, tremor, somnolence, cognitive dysfunction, confusion, agitation, amnesia, depression, emotional liability, nausea, diarrhea, diplopia, weight loss	Powerful antiepileptic action, weight loss common	Potential for CNS and other side effects
Sodium valproate (Depakote)	Primary and secondarily generalized seizures (including myoclonus and absence), partial seizures, indiopathic generalized seizures, childhood epilepsy syndrome, febrile convulsions	Nausea, vomiting, metabolic effects, endocrine effects, hepatic toxicity, pancreatitis, drowsiness, cognitive disturbance, aggressiveness, tremor, weakness, encephalopathy, weight gain	Treats a wide spectrum of seizure activity, drug of choice for those with idiopathic generalized epilepsy	Weight gain, CNS side-effects, possibility of hepatic disturbance in childhood, teratogenicity
Zonisamide (Zonegran)	Refractory partial epilepsy, progressive myoclonic epilepsy	Somnolence, ataxia, dizziness fatigue, nausea, vomiting irritability, impaired concentration, mental slowing, itching, diplopia, insomnia, abdominal pain, depression, skin rashes, hypersensitivity, renal calculi, weight loss, oligohidrosis and heat stroke	Effective in a broad spectrum of epilepsies, has indication for infantile spasms, and myoclonic epilepsies	Side-effect profile

treatments for bipolar disorder. Stahl [3] reports that the initial logic of using anticonvulsant medications to treat bipolar disorder was that seizure activity, if left untreated would result in increased seizure activity. This same pattern of neural activity becoming more pronounced with repetition was seen as similar to manic activities in people with bipolar disorder. The mechanism of action for these drugs in bipolar disorder is poorly understood. It is assumed that the same calming of neural firing are at work with people who have bipolar disorder.

Relevance to Childhood Development

The impact of having seizures during child development is different for children than for adults. The formation of personality and the special need for acceptance in the peer group to the developing child will impact development.

It is common for the parents of children with seizure disorders to protect their children and this should be avoided to allow for the least restrictive environment for the child to be safe in. Children who do have seizures will benefit from their peer group and adults who are involved in their life to have education about seizures. This will help mediate the possibility of being viewed as strange by their peers and keep them safe.

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Antidepressants

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Synonyms

Paxil (Paroxetine)

Definition

Antidepressants are the class of drugs prescribed primarily to treat symptoms of depression. They are also indicated for the treatment of ADHD, separation anxiety disorder, obsessive-compulsive disorder, eating disorders and sleep disorders.

Description

Antidepressant medications are prescribed primarily for the treatment of depression in children and adolescents, but are also used in the treatment of other common childhood disorders including ADHD, separation anxiety disorder, obsessive-compulsive disorder, eating disorders and sleep disorders. These include six classes. Tricyclic antidepressants (TCAs), Monoamine Oxidase Inhibitors (MAOIs), Selective Serotonin Reuptake Inhibitors (SSRIs), Selective Serotonin and Norepinephrine Reuptake Inhibitors (SSNRIs), Selective Norepinephrine Reuptake Inhibitors (SNRIs), and Others. In 2002, 11 million prescriptions for antidepressants were written for children under the age of 18 years [1].

Tricyclics Antidepressants (TCA's)

Tricyclic antidepressants (TCA's) are the oldest class of antidepressants and include such medications as *Elavil* (amitriptyline), *Norpramin* (desipramine), *Anafranil* (clomipramine), *Sinequan, Adapin* (doxepin), *Tofranil* (imipramine), *Pamelor* (nortriptyline), *Vivactil* (protriptyline), and *Surmontil* (trimipramine). Tricyclics block the reuptake of neurotransmitters such as norepinephrine and serotonin. These medications are used for the treatment of depression in children who are at least 12 years of age [2], although these medications have been prescribed to children younger than 12 years of age for evidence-based reasons. For example, *Tofranil* (Imipramine) is approved for the treatment of enuresis in children; however it is also used off-label for the treatment of attention-deficit/hyperactivity disorder (ADHD), school phobia, separation anxiety disorder, sleep disorders, and major depressive disorder (MDD). *Anafranil* (clomipramine) has been approved for obsessive-compulsive disorder (OCD) in children. *Tofranil* (imipramine) and *Anafranil* (clomipramine) are the two TCA's most frequently studied and utilized in the pediatric population.

Due to the rapid metabolizing of TCAs, discontinuation of these drugs may produce withdrawal symptoms including: nausea and vomiting, abdominal discomfort and pain, headache, and fatigue. Other side effects of TCAs include: drowsiness, increased heart rate, seizures, anxiety, insomnia and nightmares, confusion, delusions, blood dyscrasias, dry mouth, blurred vision, constipation, changes in libido, and psychotic episodes [2]. There have been eight reported cases of sudden death of children and adolescents taking TCAs [2]. TCAs are also fatal in overdose and should not be prescribed to children and adolescents with suicidality.

Selective Serotonin Reuptake Inhibitors (SSRI's)

The following medications are classified as selective serotonin reuptake inhibitors (SSRIs): *Prozac* (Fluoxetine), *Luvox* (Fluvoxamine), *Celexa* (Citalopram), *Lexapro* (Escitalopram), *Paxil* (Paroxetine), and *Zoloft* (Sertraline). As their name suggest, SSRIs work by blocking the reuptake of the neurotransmitter serotonin from entering the cell. *Prozac* (Fluoxetine) is the only SSRI approved for the treatment of major depressive disorder (MDD) in children and adolescents older than the age of 8. While no other SSRI has FDA approval for MDD in children, *Prozac* (Fluoxetine), *Luvox* (Fluvoxamine), and *Zoloft* (Sertraline) all have approval for the treatment of obsessive

compulsive disorder (OCD) in children older than 7 years, 8 years, and 6 years respectively. SSRIs also have approval for the treatment of panic disorder, social anxiety disorder, posttraumatic stress disorder (PTSD), bulimia nervosa, premenstrual dysphoric disorder, and generalized anxiety disorder (GAD) in adults only.

SSRIs are better tolerated and have less severe side effects than TCAs. Moreover, SSRIs do not have the lethality in overdose and cardiac toxicity that is associated with TCAs. Therefore, SSRIs have become the most frequently prescribed antidepressants for children and adolescents. The most common side effects of SSRIs include: headache, nausea and vomiting, diarrhea, nervousness, sleep disturbance (insomnia), and sexual dysfunction [2]. Furthermore, behavior changes, such as restlessness, hyperactivity, internal feelings of excitation and impulsivity have been noted with some SSRIs in the pediatric population [2]. SSRIs are longer lasting than TCAs which lends to once a day dosing and less withdrawal side effects. Regardless, discontinuation and withdrawal from SSRIs can lead to dizziness, headache, nausea and vomiting, diarrhea, movement disorders, insomnia, irritability, visual disturbances, lethargy, anorexia, tremor, electric shock sensations and lowered mood [2].

Others

Deseryl (Trazodone) and *Wellbutrin* (Bupropion) are not chemically related to other antidepressants and are classified as others. *Deseryl* (Trazodone) acts as antagonist at serotonin receptors, blocking serotonin from entering new cells. This differs from reuptake inhibitors which block the neurotransmitter from re-entering the cell it was previously released from. *Wellbutrin* (Bupropion's) mechanism of action is to inhibit the reuptake of the neurotransmitters dopamine and norepinephrine. Neither drug has indication in the pediatric population nor has the safety and efficacy of these drugs been established for children and adolescents younger than 18 years old. However, *Deseryl* (Trazodone) has been studied in children demonstrating aggressive behaviors and *Wellbutrin* (Bupropion) has been utilized in children and adolescents with ADHD. Furthermore, *Wellbutrin* (Bupropion) has been used for the treatment of smoking cessation. The most common side effects of *Deseryl* (Trazodone) include drowsiness, dizziness or lightheadedness, dry mouth, and nausea and vomiting [2]. Unlike the other antidepressants, *Wellbutrin* (Bupropion) has been linked to increased memory and concentration [2]. However, Bupropion has also been linked to seizures, agitation, dry mouth, insomnia, headache, nausea and vomiting, constipation and tremor [2].

Selective Serotonin and Norepinephrine Inhibitors (SSNRIs)

Selective serotonin and norepinephrine inhibitors (SSNRIs) include: *Effexor* (Venlafaxine), *Remeron* (Mirtazapine), and *Cymbalta* (Duloxetine). *Effexor* (Venlafaxine) works by inhibiting the reuptake of the neurotransmitters serotonin, norepinephrine, and occasionally dopamine. *Remeron* (Mirtazapine's) mechanism of action includes blocking alpha-2 receptors, which in turn inhibits the release of norepinephrine and serotonin. *Cymbalta* (Duloxetine) works by blocking the reuptake of norepinephrine in the synapse. Similar to *Deseryl* (Trazodone) and *Wellbutrin* (Bupropion), these medications have not been approved for the treatment of children and adolescents. *Effexor* (Venlafaxine) is indicated for adult depression in the immediate release formula and for MDD, GAD and social anxiety in the extended release formula. *Effexor* (Venlafaxine) has been studied in the pediatric population for MDD and GAD but no significant treatment effects were found. However, *Effexor* (Venlafaxine) was shown to negatively affect weight and height in the pediatric population. Other side effects of *Effexor* (Venlafaxine) include anxiety, nervousness, somnolence or insomnia, nausea, anorexia, weight loss, constipation, increased sweating, dry mouth, dizziness, abnormal ejaculation/orgasm, and impotence [2]. *Remeron* (Mirtazapine) and *Cymbalta* (Duloxetine) only have indications for MDD in adults. Common side effects of these medications include somnolence, increased appetite, weight gain, dizziness, dry mouth, increased sweating and constipation [2].

Selective Norepinephrine Reuptake Inhibitors (SNRI)

Strattera (Atomoxetine) is a selective norepinephrine reuptake inhibitor (SNRI) and is indicated for the treatment of ADHD in children and adolescents. SNRIs work by blocking the reuptake of norepinephrine. Side effects include dyspepsia (indigestion), nausea and vomiting, fatigue, decreased appetite, dizziness and mood swings [2].

Monoamine Oxidase Inhibitors (MAOIs)

Monoamine Oxidase Inhibitors include: *Nardil* (Phenelzine), *Parnate* (Tranylcypromine), and *Eldepryl* (Selegiline). MAOIs have a complex mechanism of action. These drugs block the chemical monoamine oxidase, which inhibits the breakdown of monoamine neurotransmitters. These neurotransmitters are responsible for breaking down other neurotransmitters, such as dopamine, serotonin and norepinephrine. Because these neurotransmitters are not

being broken down, there are more of these neurotransmitters available in the body. *Nardil* (Phenelzine) is approved for MDD in adolescents at least 16 years of age and *Parnate* (Tranylcypromine) is only indicated for adults. Due to the severe food and drug interactions of MAOIs, they are primarily used in adults who have failed to respond to other antidepressants. Ingesting foods containing Tyramine (such as cheese, wine, beer) and other drugs (such as caffeine) can lead to hypertensive crisis. Other significant reactions of these drugs include orthostatic hypotension, dizziness, headache, sleep disturbances, sedation, fatigue, weakness, hyperreflexia, dry mouth, and gastrointestinal disturbances [2].

Black Box Warnings on Antidepressants

In October 2004, the Food and Drug Administration (FDA) ruled to label antidepressants used in the treatment of children and adolescents with a black box warning. According to the black box warning, use of antidepressants within this population may lead to increased risk of suicidal thinking, suicidal gestures, and death by suicide [4]. This warning also specifies that children, adolescents, and young adults taking antidepressants should be closely monitored following the initiation of the medication. Despite the recommendation for follow-up and increased monitoring, the majority of pediatric patients treated with antidepressants have no contact with mental health providers [3, 6]. Since the commencement of this black box warning, antidepressant prescriptions have dropped by 54% for all antidepressants that are not FDA approved for use in children and adolescents, while the rate of prescriptions for Fluoxetine, the only FDA approved antidepressant for use in children, increased by 60% [5].

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Antiepileptic Drugs

▶Anticonvulsants

Antipsychotics

Synonyms

Depressants

Description

Antipsychotics, or neuroleptics are medications used in psychiatry to manage delusions and hallucinations particularly individuals suffering from schizophrenia or bipolar disorder. These medications were first discovered in the 1950's. The original drugs were referred to as typical antipsychotics. The newer drugs in this category are referred to as atypical antipsychotics. Both generations of medications interact with a wide range of receptor targets in the brain. A number of adverse side effects have been observed with these medications including lower life expectancy, weight gain, tardive dyskinesia, diabetes, and sexual dysfunction. The development of new antipsychotics and the relative efficacy of different ones is an important ongoing field of research.

Antiseizure Drugs

▶Anticonvulsants

Antisocial Behavior

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Synonyms

Physical aggression

Definition

Antisocial behavior describes disruptive, external behaviors and actions of a child, in which the rights and norms of others or society are violated. These undesirable behaviors are influenced by many, if not all, aspects of the child's

life (school, community, physical, emotional, parental, etc.). Furthermore, these behaviors are often involved in attention deficit-hyperactivity disorder, conduct disorder, and oppositional defiant disorder.

Description

For decades research on antisocial behavior (ASB) has expanded to detailed research examining the root causes of these disruptive behaviors starting as early as conception. Understanding the development of ASB in children is important to researchers as they try to uncover objective reasoning behind the harmful actions of these individuals. Furthermore, acknowledgment of related disorders such as attention deficit-hyperactivity disorder (ADHD), conduct disorder (CD), and oppositional defiant disorder (ODD) by the American Psychiatric Association has led to great demand for such research. The creation of assessment instruments to measure ASB also has allowed for a greater understanding of the behavior and provides insight on possible prevention and intervention strategies.

Research has found that there are many types and forms of aggression in children, making it a complex construct to study. Early in the research history of ASB antisocial activity was divided into two categories, undersocialized and group-delinquent [4]. Today, aggressive behaviors can be classified as verbal, physical, goal-directed, proactive, reactive, direct, indirect, relational, overt, or covert [4]. Moreover, antisocial aggression can be further broken down in terms of when and how onset began.

Bloomquist and Schnell [2] discuss the pathways of ASB in terms of early-onset continuously adaptive, early-onset continuously maladaptive, the resilient pathway, and the late-onset maladaptive pathway. These four pathways seek to explain the social, emotional, cognitive, and physiological functioning of the child at various stages of ASB development. ASBs fall on a continuum from mild to severe behavior problems, depending on factors such as intensity, frequency, and impact on the environment [4, 6]. Therefore, diagnostic measures are multimodal in nature. This has led researchers to link such behaviors to other disorders that are better understood and clearly defined as a means to quantify them.

DSM-IV and ADHD, CD, and ODD

ADHD, CD, and ODD have both similarities and differences as they relate to antisocial behavior. ADHD is commonly comorbid with CD and ODD, though not as persistent with CD [4]. ADHD is defined as developmentally inappropriate inattention and/or hyperactivity-impulsivity that results in significant impairment [1]. Research suggests that early aggressive behavior combined with ADHD symptoms are precursors for the development of ASB [4].

ODD is defined as a chronic pattern of disobedient, defiant, and hostile behaviors [1]. These behaviors include: losing temper, arguing, defying or refusing to comply with rules or requests of adults, deliberately annoying others, blaming others, anger and resentment, and spiteful or vindictive actions [1]. ODD includes a variety of covert and overt behaviors, and there is evidence to indicate that ODD serves as an antecedent to CD. CD is defined as a chronic pattern of behavior in which the rights of others are violated and societal norms are disregarded [1]. Categories of behavior include aggressive conduct, nonaggressive conduct, deceitfulness or theft, and serious violations of rules. In general, the behaviors required for diagnosis of CD are more antisocial in nature and more severe than those involved in ODD.

Development of ASB

It is widely agreed throughout the literature that while ASB has various root causes, overall it is learned behavior that is highly influenced by early development. The development of ASB begins early and grows through adolescence and adulthood. However, it is not to be assumed that all children displaying symptoms of ASB will go on to develop CD or ODD; a substantial number of them develop normally [4].

The development of ASB begins with the caregiver unknowingly conditioning maladaptive behaviors such as impulsivity, negative temperament, and sensation seeking from infancy [2, 4]. Usually, environmental factors contribute to the caregiver's lack of knowledge and parenting skills to combat such conditioning, including health of the mother, low socioeconomic status, family size, and involvement of both parents [5, 6].

According to [2], the development of ASB follows stages. Beginning at birth through age 2, children may develop a difficult temperament portrayed by irritability, anger, and frustration. At ages 3–5 this temperament is displayed through tantrums, argumentativeness, and defiance. In elementary school years covert aggressive behaviors (stealing, lying, sneaking) begin to develop. This is followed by more frequent and substantially delinquent behaviors, such as skipping school, vandalism, experimentation with drugs and alcohol, and fire setting, from ages 9–14. Once in adolescence there is a crystallization of such behaviors that escalate to violence, gang affiliation, promiscuity, and more serious substance abuse. It is estimated that 1 in 3 children with early onset ASB will develop adult antisocial personality disorder; the others may have functional problems throughout adulthood, including trouble keeping a job, violence, relationship difficulty, and criminality [2].

Assessment

Rating scales are commonly used to identify externalizing behavior patterns including impulsivity, overactivity, aggressiveness, and tantrums [6]. Furthermore, observations of the behaviors and related family interaction have led to better diagnostic validity, as have family history interviews, self-reports, and evaluations of environmental causes of ASB patterns [6].

The use of rating scales to assess ASB has positive and negative aspects. Behavioral checklists, such as the Child Behavior Checklist and the Revised Child Behavior Profile, require an adult informant's view of the child's behavior. Though these instruments are easy and quick, they require adults close to the child to judge behavior, which may compromise objectivity. Another shortcoming of rating scales is that in many cases they do not parallel diagnostic criteria for ASB [6]. Overall, these scales do provide some insight into the behavior problems with a child, but should be utilized with other assessment tools in order to gain a multidimensional understanding of the child's behavior so that an appropriate intervention can be designed.

ASB Prevention and Intervention

Research conducted by [5] outlines targets for prevention and early intervention for children at risk for ASB, a term they call "preventative intervention." They begin by discussing the learned maladaptive behaviors and negative reinforcement patterns unknowingly taught by the caregiver. For example, when a demand is placed on the child the child has learned that if he/she displays an undesirable behavior, such as a tantrum, the caregiver will withdraw the demand to keep the peace. The interventions work to disrupt these negative reinforcements through consistent and long term reconditioning of the behavior.

Furthermore, preventative intervention aims to teach the caregiver how to set appropriate limits and utilize appropriate discipline techniques. It also teaches him/her how to reward positive interactions and encourage positive behavior and social interaction. These skills are then intended to be used outside of the home at the playground, in the classroom, and throughout the community [5]. Overall, preventative intervention may not be the only way to reconstruct a child's behavior, but it does work to reduce risk factors in the short and long term [6].

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Antisocial Personality Disorder

▶Sociopathy

Anxiety

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Synonyms

Apprehension; Autonomic arousal; Fear; Fight or flight; Hyperarousal; Revised children's manifest anxiety scale: second edition; Stress; Sympathetic activation; Threat response

Definition

Anxiety is a basic emotion best described as a state of vigilant apprehension whose function it is to prepare for a response to a perceived threat. Anxiety has several associated, though not necessarily correlated, dimensions: phenomenological, emotional, cognitive, behavioral and physiological [3]. The state is characterized by a narrowing of attention [10], a sense of dread [27], ruminative worry [25], a perception of vulnerability [33], an inhibition of behavior [15] and a heightened state of sympathetic arousal. It is generally experienced and classified as a negative emotional state, along with anger and sadness.

Description

Clinical Significance

Anxiety becomes clinically significant, reaching a level of diagnosable disorder, when there is a resulting impairment in one's ability to function (i.e., when the state no longer assists the organism in dealing effectively with threat) and/

or when the associated subjective distress is marked and debilitating [43]. Other clinically significant features of anxiety include a threat response system that becomes too inflexible, too easily and inaccurately triggered and too slow to return to baseline once initiated [7].

Diagnosis

Diagnosis across all mental disorders including anxiety disorders has been historically categorical. There are currently twelve separate anxiety disorders identified in the Diagnostic and Statistical Manual of Mental Disorders IV-TR, including Separation Anxiety Disorder, and at least 23 other anxiety-related conditions [1].

Emerging trends alternatively suggest models of disorder that are dimensional assessing aspects of experience along continua as opposed to meeting criteria for a certain number of present features [21]. High co-morbidity rates across disorders with regards to a ubiquitous anxiety presence (as much as 42% in a recent epidemiological study of anorexia nervosa adolescent patients [35], 29% in autism-spectrum disorders [37] and 25% in a study of ADHD children as examples [19]) has furthered a change in conceptualization away from a categorical view of anxiety to one of general distress.

As diagnosis is inextricably tied to treatment, categorization, an emphasis on randomized control experimental studies as the gold standard for determining efficacy and a general movement toward evidence-based treatments led to a proliferation of protocols and guidelines for first-line interventions for anxiety (and other) disorders. Newer, unified protocols, however, attempt to address the essential maintaining elements of distress and dysfunction across disorders such as threat appraisal, experiential avoidance and emotion-driven behaviors [4].

Anxiety Disorders in Children

Children experience the full range of anxiety disorders similarly to adults. Life stage differences can yield categorical variations (e.g., separation anxiety, selective mutism and some types of school refusal) but the overall form, experience and impairment that results is frequently similar and equally distressing and limiting [14]. Developmental and socialized differences between children and adults can give rise to differences in the surface features of expressed anxiety such that these represent interesting and important clinical intervention markers rather than substantive differences in the function or dysfunction of anxiety.

Prevalence of Anxiety Disorders

The National Institute of Mental Health puts best estimate 1-year prevalence rates for anxiety disorders among 18–54 year olds at 16.4% of the population [28]. For children and adolescents aged 9–17 years, that figure is 13.0%. The rates for any (mental) disorder, however, are 21.0% for adults and 20.9% for children. While the definition and subsequent nature and distribution of mental disorders can be slightly different in children and adolescents, overall levels (accounting for dissimilarities and difficulties in categorization) suggest quite similar rates of disorder across ages.

From Child to Adult Anxiety Disorder

At question is the developmental course of anxiety disorders in children and whether their presence indicates risk for related, though not always the same, adult onset disorders [16]. Separation anxiety disorder, for example, appears related to the onset of panic disorder, agoraphobia and other conditions yet may simply represent the culmination of processes such as an early sense of low perceived personal control experienced within the critical mammalian context of attachment that, by itself, may be a vulnerability to anxiety disorder onset at any age [13]. Further, with the added interaction of physiological and possibly genetic propensities for heightened nervous system sensitivity to perceptions of unpredictable, uncontrollable environments, the stage is set for the development of a variety of threat-related disorders of hyperarousal [2].

With these issues at hand, researchers have turned to identifying the transdiagnostic processes and perhaps even the transprocess variables that endow vulnerability to disorder [23] where risk factors suggest correlation between a characteristic and an outcome and vulnerability connotes more causal factors to onset.

Key Dimensions

Key dimensions of anxiety worth measuring are: allocated attention to threat [34], appraisal of the degree of danger posed by threat [11], appraisal of one's abilities and resources to handle threat, anxiety sensitivity (AS) [41], emotional, cognitive and behavioral avoidance [26] and inflexible response strategies often characterized by escape, these strategies termed safety maneuvers for their misattributed role in the perceived result of lack of harm [36].

Physiological indices of anxiety have frequently been examined but have been shown to be inconsistently correlated with emotion. Homeostatic measures such as heart rate, blood pressure, cortisol levels and amygdala activation can be difficult to interpret when detected coincident to anxiety [12].

Allostatic models of physiological function, on the other hand, emphasize change as critical to stability and purport that healthy organisms are free to vary to a much greater degree than unhealthy ones and lead to perhaps more reliable measures of anxiety. Heart rate variability is one such measure where decreased variability is suggestive of increased pathology [24].

Genetic models are advancing that elucidate mechanisms and processes related to anxiety disorder onset. Neurotransmitter efficiency, receptor site affinity and pre and post synaptic activity are all promising but as yet not well understood variables leading to particular behavioral outcomes. The picture is further complicated by epigenetic factors, such as shared familial environment or an early learning history of low perceived control, that moderate the effects of dysmorphic architecture on the etiology of anxiety disorders in children and adults alike [38].

Coping with Anxiety

To reiterate, anxiety is a useful, purposeful emotion whose function it is to prepare and motivate an organism to effectively respond to threat. When the anxious response begins to become problematic, as noted previously, there arises a need for additional resources within the individual to handle the response itself. Anxiety management [39] thus became an important area of research and intervention for clinical reasons, where anxiety rose to a level of diagnostic significance, and for non-clinical reasons as in performance enhancement in areas such as sports or educational psychology [40].

Early models of anxiety management, particularly behavioral models, stressed maneuvers aimed at stopping or limiting the anxiety response. Progressive muscle relaxation or PMR is one such early attempt to "reciprocally inhibit" anxiety [42]. In this procedure, an individual volitionally and progressively tenses then relaxes various muscle groups. Later refinements added programmed monitoring of discrete changes in muscular tension through focus on perceived changes in blood flow and strain as well as on the difference between tension and relaxation. PMR became a standard component of most anxiety management packages both clinical and non-clinical [17].

Systematic desensitization or SD extended this line of reasoning with a procedure that attempted to pair relaxed states with stimuli that previously elicited states of anxiety thereby neutralizing a sympathetic response [44]. Based on classical conditioning theory, the SD strategy tried to break the associational bonds between stimuli and responses. Later theoretical explanations looked to the modulation or contextual effects of new learning upon old [6].

Cognitive-behavioral models that followed were quick to adopt a similar anxiety-stopping philosophy. Thought suppression, distraction and substitution of positive imagery were developed as methods to temper unhelpful feelings by directing attention and cognition away from presumed triggers of distress [30].

Exposure was another technique aimed at eliminating a particular response developed in behavioral theory. Based on extinction concepts, exposure was later applied to anxiety and has since proved to be among the most robust and potent interventions of all. Exposure in a strict behavioral account of fear learning refers to exposure to stimuli in the absence of previous reinforcement whose effect is explained by a passive process where a response to a stimulus is extinguished or sometimes explained by a passive physiological process known as habituation [32].

The advent of two-factor learning accounts of fear acquisition and maintenance joined classical with operant conditioning principles [44]. Where classical accounts stressed associations between stimuli and elicited responses, operant principles stressed the organism's emitted behaviors that changed the contingent consequences. Simply put, in the presence of stimuli signaling a feared outcome, the emission of a response such as escape or avoidance that changes an expected outcome is said to have reduced anxiety and reinforced the tendency to flee on subsequent encounters with similar stimuli. Escape response prevention became an important addition to the exposure technique [5].

Pharmacological models, likewise, have focused on management and treatment strategies aimed at attenuating or terminating anxiety. While precise mechanisms of action are frequently unknown and to a great extent involve a significant placebo component [31], the use of benzodiazepines and other agents to depress sympathetic activation have become widespread. Several theoretical mechanisms attempt to account for their therapeutic effect including, but not limited to, enhancing the activity of inhibitory central nervous system neurotransmitters such as gamma amino butyric acid or GABA [31]. Still other pharmacologic interventions aim to attenuate anxious symptoms directly by the use of agents such as beta-blockers to suppress cardiac response and stem sympathetic arousal. Even anti-depressant agents known as selective serotonin-reuptake inhibitors or SSRIs also have significant adrenergic effects and have been shown to reduce anxious symptoms such that they are independently indicated for use in various anxiety disorders [18]. This general strategy of stopping anxiety perpetuates notions of "protecting" the patient as well as the view that anxiety is dangerous and a threat in itself.

The reader will note that certain medical conditions can be exacerbated by sudden sympathetic activation and possibly trigger events that are in fact dangerous to the individual. Medical management strategies in this case often involve limiting sympathetic arousal through chemical and sometimes surgical means [8]. The importance of a complete medical examination to rule out any underlying possible medical conditions that can either cause or be exacerbated by sudden anxious response cannot be underestimated. Individuals may have anxiety disorders prior to onset of medical conditions or may develop such conditions coincident to them. While the vast majority of anxiety disorders occur in individuals where medical status is not a significant or complicating factor, careful collaboration between physicians and other treating professionals is, nonetheless, important if not essential.

In the absence or presence of medical conditions, individuals vary in their degree of anxiety sensitivity (AS) defined as the general sense that, when experienced, anxiety is harmful to the self. This concept has been shown to be predictive of development of anxiety disorders [41]. The individual high in AS is seen as more vulnerable to misinterpretation of the benign physiological sensations associated with sympathetic arousal in a healthy person. These individuals are hypervigilant to anxiety symptoms, have a propensity to view these symptoms in harmful terms, overestimate the likelihood that the worst possible outcomes will happen and underestimate their ability to cope.

Cognitive models have more purely retained a focus on the active process of relearning about danger signals and coping capacities through the actual experience of anxiety not its suppression [36]. These cognitive accounts emphasize cognitive reappraisal through confronting fears by choice and prediction testing while dropping maneuvers that contribute to false attributions of safety. These approaches also often utilize imaginal or visual channels to achieve changes in threat assessment and self-efficacy. The desired end of such procedures is not to stop anxiety but to restore its accurate and purposeful function in an effective response to threat.

More recent cognitive models termed mindfulness-based approaches have begun to move away from notions that emphasize management or regulation of anxiety to awareness and acceptance of the response largely based on findings demonstrating increases in anxiety directly due to attempts at control [9]. Unfortunately, these models fail to acknowledge both the exposure component inherent in their procedures and the likely explanation of cognitive reappraisal as the mediating variable of change. These approaches have, however, furthered a functional, purposeful view of anxiety, and all emotion for that matter, in a healthy person's search for a full and valued life.

Future models, whether psychological, physiological or pharmacological, may very well relinquish attempts at anxiety control and may focus instead on techniques that enhance learning [20]. New paradigms are beginning to emerge such as the use of the antibiotic d-cycloserine to augment exposure [29] or transcranial stimulation [22] of neocortical regions with projections to the limbic system that may improve the ability to benefit from experience or chemical agents such as dopamine reuptake inhibitors that may boost the efficiency of the brain's reward system and aid the organism in profiting from the contingencies which their behaviors actually produce. The focus of the future may not be to counter disorder and disease but rather to create the conditions within individuals which promote the great inherent potential of the human being to grow and to heal.

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Anxiety Disorders

Synonyms

Generalized anxiety disorder; Obsessive–compulsive disorder

Definition

Anxiety is a usual reaction to everyday life stress; however, when anxiety becomes excessive and irrational it can interfere with an individual's life and reach the level of disorder. Severe anxiety can manifest through disturbance of mood, behavior, thought, and other psychological activities. Anxiety disorders are the most common mental disorders and are highly comorbid with a number of other psychological disorders.

Description

There are a number of anxiety and anxiety related disorders, they are as follows:

- Generalized Anxiety Disorder (GAD)
- Obsessive-Compulsive Disorder (OCD)
- Panic Disorder
- Post-Traumatic Stress Disorder (PTSD)
- Social Phobia (Social Anxiety Disorder)
- Specific Phobias

Treatment

Generally, anxiety disorders can be treated with medication, psychotherapy, or a combination of medication and psychotherapy. The typical medications used to treat anxiety are antidepressants, selective serotonin reuptake inhibitors (SSRIs), monoamine oxidase inhibitors (MAOIs), tricyclics, benzodiazepines, and beta-blockers (for physical symptoms). The most prominent and evidence-based psychotherapy treatment for anxiety disorders is cognitive-behavioral therapy (CBT) that can be used with a number of anxiety disorders to help alleviate both the thought and behavioral disturbances caused by anxiety disorders. There are also exposure therapy for OCD and phobias, acceptance and commitment therapy (ACT), dialectical behavior therapy (DBT), interpersonal therapy (IPT), and eye movement desensitization and reprocessing (EMDR) for post-traumatic stress disorder, panic attacks, and phobias. A combination treatment of medication and psychotherapy has been shown to yield best treatment outcomes. However, note that treatment options should be considered on an individual case basis.

Relevance to Childhood Development

Many children will have appropriate fears and anxieties that correspond with their developmental age. It is important for parents to monitor their children's fears, and to see if the child out grows their fears at an appropriate age. Anxiety can interfere with children and adolescent's social, school, and everyday life functioning. Further, excessive anxiety at an early age may suggest future anxiety problems or be factors in the formation of other mental health disorders. Parents need to play an active role in seeking treatment for their child and can discuss treatment options with their child's physician.

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Anxiolytics

►Depressants

Anxiolytics/Hypnotics

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Synonyms

Anti-anxiety medications; Depressants; Sleeping pills; Soporifics; Tranquilizers

Definition

Anxiolytics are agents used to decrease emotional tension or anxiety. Hypnotics are drugs used to induce drowsiness or sleep or to reduce psychological excitement or anxiety [17].

Description

An anxiolytic is a drug prescribed for the treatment of symptoms of anxiety.

Hypnotic drugs induce sleep and are typically used in the treatment of insomnia and in surgical anesthesia.

Sedative–hypnotic, is a substance that depresses the central nervous system (CNS) resulting in calmness, relaxation, sleepiness, slowed breathing, and reduction of anxiety.

Types of Anxiolytics (Partial List)

1. Benzodiazepines (BZDs)
   - Alprazolam (Xanax)
   - Bromazepam (Calmepam)
   - Chlordiazepoxide (Librium)

- Clonazepam (Klonopin/Rivotril)
- Clorazepate (Tranxene)
- Diazepam (Valium)
- Halazepam (Paxipam)
- Lorazepam (Ativan)
- Medazepam (Nobrium)
- Nordazepam (Stilny)
- Oxazepam (Alepam)
- Prazepam (Centrax)

2. Azaspirodecanediones/Serotonin 1A agonists
   - Buspirone (BuSpar)

Types of Hypnotics (Partial List)

1. Barbiturates (Sedatives)
   - Amobarbital (Amytal)
   - Phenobarbitol (Luminal)
   - Pentobarbital (Nembutal)
   - Secobarbital (Seconal)
2. BZDs commonly prescribed to treat insomnia
   - Estazolam (ProSom, Eurodin)
   - Flunitrazepam (Rohypnol)
   - Flurazepam (Dalmane)
   - Temazepam (Restoril)
   - Triazolam (Halcion)
3. Nonbenzodiazepines commonly prescribed to treat insomnia
   - Zaleplon (Sonata)
   - Zolpidem (Ambien)
   - Eszopiclone (Lunesta)
4. Antihistamines
   - Diphenhydramine (Benadryl)
   - Doxylamine (sedating ingredient of NyQuil and used in over the counter sleep aides such as Somnil, Dozile, Donormyl, Restavit and Unisom-2)
   - Hydroxyzine (Vistaril)
   - Promethazine (Phenergan)
5. Other
   - Gamma-hydroxybutyric acid, GHB (Xyrem, Illegal use: aka "date-rape-drug")
   - Glutethimide (Doriden)
   - Melatonin, a hormone, can work as a hypnotic if taken 30–90 min before usual bedtime. Ramelteon (Rozerem), a relatively new drug, stimulates melatonin receptors in the brain
   - Alcohol is also used as a sedative–hypnotic drug, though not medically

BZDs: BZDs, though used for a wide variety of conditions, are most commonly prescribed for short-term relief of severe and disabling anxiety such as panic disorder, generalized anxiety disorder (GAD), and social phobia. Long-term use is typically not recommended because they are habit forming and there is a risk of withdrawal symptoms and rebound syndrome after continuous usage past 2 weeks. Common withdrawal symptoms include anxiety, insomnia, restlessness, agitation, muscle tension, and irritability. Seizures and depression may also sometimes occur. To attenuate adverse effects such as drowsiness, cognitive impairment, disinhibition, depression, motor impairment, and rebound anxiety, BZD dosage should titrated slowly and tapered gradually [5, 19].

Due to their low toxicity and rapid and effective action, BZDs may be indicated to cover the latent periods associated with slower onset medications, such as selective serotonin reuptake inhibitors (SSRIs) and Serotonin 1A agonists, now commonly prescribed for long-term treatment of anxiety. BZDs are also often a first choice when rapid control of acute symptoms is needed [11]. Longer term uses include treatment for severe anxiety and psychosis. BZDs are also potent anticonvulsants and have life-saving properties in the acute management of status epilepticus. The most commonly-used BZDs for seizure control are lorazepam and diazepam.

The pharmacological actions of BZDs are believed to enhance gamma amino butyric acid (GABA-A) function and therefore are referred to as GABA-A agonists. BZD agents bind to unique portions of GABA receptors that exist as large protein complexes located on neurons in the CNS. This protein serves as the major inhibitory neurotransmitter in the brain [19]. By enhancing GABA's inhibitory actions, brain cells are unable to be stimulated by excitatory neurotransmitters, and this inhibition alleviates symptoms of anxiety. The impact of BZD agents on particular regions of the CNS appears to determine the clinical effect. BZDs impact on the cortex and limbic system is associated with their anxiolytic properties. The effect on the brain stem and reticular formation appears to induce a sedative effect. The impact on the striatum, globus pallidus, and substantia nigra is associated with anticonvulsive effects, while the effect on purkinje cells in the cerebellum is implicated in their anti-ataxic effects [7].

Azaspirodecanediones/Serotonin 1A agonists: Azaspirodecanediones are a class of drugs with both antidepressant and anxiolytic effects. Azaspirodecanediones have fewer side effects than most BZDs, are not habit forming and do not exacerbate the effects of alcohol. Azaspirodecanediones are thought to agonize serotonin (specifically the 5-HT1A receptor), primarily in the

hippocampus. Buspirone (BuSpar) is the most commonly prescribed serotonin 1A agonist for the treatment of GAD. Reportedly, like SSRIs, BuSpar works gradually, reaching therapeutic levels in approximately 2–6 weeks. BuSpar has not been supported as a highly effective broad spectrum anxiolytic in adults [4]. However, there is some evidence of effectiveness with children presenting with both anxiety and depression [8, 13] or to augment the effects of SSRIs [2].

Barbiturates: Barbiturates, such as pentobarbital and phenobarbital, were the first agents to treat anxiety disorders in adults and children. Barbiturates exert a sedating effect linked to their ability to reduce physiological symptoms of anxiety. Barbiturates and BZDs act similarly to produce depression of CNS function and behavior. Both classes of drugs enhance the ability of the inhibitory neurotransmitter, GABA. BZDs, however, have largely supplanted barbiturates because BZDs have less potential for abuse, addiction and lethal overdoses [14]. Many experts consider barbiturates obsolete, although they may be valuable for the short term treatment of severe insomnia, only after BZDs or non-benzodiazepines have failed. They are contra-indicated for use children or adolescents [4].

Antihistamines: Antihistamine drugs exhibit anticholinergic (drying) and hypnotic–sedative properties and are most commonly used to treat allergic reactions. The body releases histamine during several types of allergic reactions and, to a lesser extent, during some viral infections such as the common cold. When histamine binds to its receptors on cells, it causes the cells to release chemical messengers that lead to sneezing, itching, and increased mucus production. Antihistamines, like histamine, bind to the histamine receptors, but when they bind to the receptors they do not stimulate the cells to release chemical messengers. In addition, they prevent histamine from binding and stimulating the cells. As mild sedatives, antihistamines are also sometimes prescribed to calm sporadic anxiety and combat insomnia [4].

Relevance to Childhood Development

The primary indications for use of anxiolytics and hypnotics in children and adolescents are anxiety disorders, sleep disorders, seizures, psychosis, aggression, and preparation for medical and dental procedures [19]. Affecting 6–18% of children and adolescents, anxiety disorders are among the most common mental health conditions and can impair social and academic functioning to the same extent as disruptive behavior disorders [3, 16, 18]. Moreover, childhood anxiety disorders have been associated with vulnerability to a number of adult mental health challenges [1, 9, 12]. Thus, childhood anxiety disorders represent a significant public health concern and mandate efficacious and early intervention. Best practices in childhood mental health professions assert a multimodal approach where psychotropic medication is considered only one aspect of a comprehensive treatment program. Ideally, psychopharmacological interventions should be combined with others interventions such as social skills training, special education, psychoeducation and/or individual and family psychotherapy as determined through systematic assessment of individual needs [10, 13].

Though touted for their quick action, low toxicity, and relatively safe side effect profile in use with adults, the literature on the efficacy of BZDs in children and adolescents with anxiety disorders is scant and inconsistent. In addition, the potential for abuse, dependence, and adverse events limits their use of first line agents in childhood psychopharmacotherapy. Side effects such excitement, rage, anger, or hostility occur more frequently in children and adolescents. Because anxiolytics typically result in calming effects, these are coined "paradoxical reactions." These reactions may occur secondary to the relief of anxiety and usually occur within the first two weeks of therapy. In contrast to the literature on BZDs, substantial evidence supports the use of SSRIs in the treatment of pediatric anxiety disorders. Although treatment with SSRIs may lead to a small increase in the risk for suicidal ideation in children and adolescents, they are most frequently favored for the treatment of childhood anxiety by prescribers [5, 6, 14, 15, 19].

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Anxious Attachment

►Ambivalent Attachment

Apathetic

►Identity Diffusion

Apgar

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Definition

The Apgar test is a quick and efficient system used to assess the physical condition of a new born child at birth and to determine the need for immediate medical care.

Description

The Apgar test is a quick and efficient system used to assess the physical condition of a new born child at birth and to determine the need for immediate medical care. The scoring system was developed by Virginia Apgar, M.D in 1952 to rapidly determine the medical condition of an infant immediately following delivery [1]. The Apgar test is based upon five objective signs present at birth. Each condition is evaluated on a scale from zero to two with a total Apgar score ranging from 0 to 10. Total scores earned on all five criteria of 3 and below are considered critically low; scores between 4 and 6 are fairly low, while scores between 7 and 10 are within normal limits [4]. The Apgar test is conducted at 1 and 5 min after birth. If the first two Apgar scores are low or if there are concerns regarding the baby's overall condition, an Apgar test may be given at 10 min after birth as well [4].

The letters of Dr. Apgars' last name have become an established acronym for the conditions of the test and are as follows: **A**ppearance, **P**ulse, **G**rimace, **A**ctivity and **R**espiratory (see Table 1) [2]. A newborn's appearance is based upon their color and the presence of cyanosis [1]. Pulse is based upon heart rate and is the most important condition of the five areas assessed [3]. A heart rate of 100–140 is scored a 2, a rate under 100 is scored a 1, and the absence of heart rate is scored a 0. Grimace is based upon reflex irritability to some form of stimulation. The stimulation is usually the placement of a rubber catheter inside the infant's nostril. A score of 2 is assigned if the infant pulls away, sneezes or coughs, a score of 1 are assigned if the infant only provides a facial response such as a grimace, and a score of 0 is assigned if there is an absent response to stimulation. Activity is based upon muscle tone. A score of 2 is assigned to an infant who spontaneously flexes their arms and legs with active movement. A score of 1 is assigned to an infant who flexes their arms and legs without movement, while a score of 0 is assigned to an infant who remains completely flaccid. Lastly, respiratory effort is based upon breathing rate

Apgar. Table 1 Apgar test

Acronym	Sign	Score 0	Score 1	Score 2
A	A. Appearance (skin color)	Blue, pale	Body pink, limbs blue	All pink
P	P. Pulse (heart rate)	Absent	<100	>100
G	G. Grimace (reflex irritability)	None	Grimace	Sneeze, cough, cry
A	A. Activity (muscle tone)	Limp	Some flexion of limbs	Active movements
R	R. Respiratory effort	None	Slow, irregular	Effortful, good strong cry

Source: [2]

and effort. An infant who breathes at a normal rate and provides an effortful cry receives a score of 2, an infant with slow and irregular breathing and a weak cry receives a score of a 1, while an infant who has absent breathing receives a score of 0 [1, 4]. Low Apgar scores, particularly at 1 min are commonly seen following a high-risk pregnancy, cesarean section, complicated deliveries and among premature infants. By 5 min, scores frequently improve. Critically low scores suggest that the neonate is in critical condition and requires immediate medical attention [4].

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Apgar Score

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Definition

The Apgar score is a measure of the infant's condition immediately after birth.

Description

The Apgar score is the most well-known representation of the newborn's risk status administered immediately after birth. Because newborns may have suffered distress prior to or during birth or may have difficulty transitioning to life outside the womb, the Apgar is used to quickly screen newborns to identify infants who need immediate attention. The screening is administered at one minute after birth and if any difficulties are noted the baby is screened again at five, and sometimes at ten minutes after birth. The additional Apgars are administered to assure that infants who show distress at first have recovered by the 5 or 10 min measure.

In 1952, Virginia Apgar, M.D. presented "A proposal for a new method of Evaluation of the newborn Infant" to the Twenty Seventh Annual Congress of Anesthetists. The purpose of her proposal, published with supportive data in 1953, was to provide a practical, clear evaluation of the condition of the newborn infant. She recommended that the scale be used to compare "the results of obstetric practice, types of maternal pain relief and the effects f resuscitation."

The criteria for her assessment are:

	Score of 0	Score of 1	Score of 2
Heart rate	Absent	Slow (<100 beats/min)	>100 beats/min
Respiratory effort	Apneic (no breathing)	Weak cry, hypoventilation	Good strong cry
Reflex irritability	No response to stimulation	Grimace, feeble cry when stimulated	Grimace, sneeze, cough
Muscle tone	Limp	Some flexion	Active movement
Color	Blue or pale all over	Blue at extremities, body pink	Body and extremities pink

As displayed in the table, a 0, 1, or 2 rating is made for each of 5 functions: heart rate, respiration, reflex response, muscle tone, and color. A score of 2 for a particular function is the best possible sign indicating no cause for concern.

A score of 0, 1, or 2 for each sign indicates whether the sign is absent or present. The highest possible composite score is 10 and indicates that the baby is in the best possible condition. An Apgar score of 7 or better means that the infant needs little medical intervention and is successfully adapting to the postnatal environment. A score of 3 or lower means emergency medical attention is needed.

Because the Apgar scale is such a clinically useful screener of newborn risk status, hospitals around the world use it daily. Findings from follow-up studies indicate that the Apgar has survived the "test of time." In an analysis of more than 150,000 infants researchers in Texas found a strong correlation between infant mortality and the 5 min Apgar score. The 1 min score continues to focus attention on the infants' condition immediately after birth.

Relevance to Childhood Development

The Apgar score at one minute after birth focuses on the infant's need for resuscitation. Without a quick, easy to administer assessment of infant status, infants in the past were less supported medically and more poorly monitored. An Apgar score of 0–3 at 5 min predicts infant mortality within the first 28 days of life. Although the Apgar alone does not predict cerebral palsy, uses in conjunction with other measures it can contribute to the prediction of developmental difficulties.

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Aphasia

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Synonyms

Impaired language; No language; Reading impairment

Definition

Aphasia is a disorder of language most often secondary to brain damage (as opposed to *dysphasia*, which is a congenital or developmental language disorder and not partial or incomplete aphasia). Aphasia is usually caused by lesions, or dysfunction, in the region of the sylvian fissure of the dominant hemisphere of the brain. The sylvian fissure comprises the opercular and insular areas, which are supplied by branches of the left sylvian artery. The upper division of the sylvian artery supplies the insula and the upper regions of the sylvian fissure, and the lowed division supplies the posterior parieto-occipital regions. Most commonly, aphasic disorders arise from arterial disease in the two divisions.

Description

Aphasia has several clinical types that are related to the site of the brain damage. Systematic clinical examination is necessary to decide whether the patient has *motor*, or *Broca's aphasia*, which is sometimes called *expressive*, *anterior*, or *nonfluent aphasia*; a *sensory* or *Wernicke's aphasia*, which also is referred to as *receptive*, *posterior*, or *fluent aphasia*; a *total* or *global aphasia*; or one of the *dissociative language syndromes* that include *conduction aphasia*, *word deafness* (*auditory verbal agnosia*), *word blindness* (*visual verbal agnosia* or *alexia*), and several types of *mutism*. *Mutism* does not permit to predict the exact site of the lesion. *Anomia*, which is also called *nominal* or *amnesic aphasia*, and *agraphia*, which is impaired ability to communicate by writing, are often found to some degree in all types of aphasia. Additionally, agraphia is rarely to be found alone [1, 5].

Motor aphasia (*Broca's aphasia*): Broca's aphasia is a primary deficit in language output or speech production. This type of aphasia has a wide range of variation in motor deficit, from the mildest type known as cortical dysarthria, which is characterized by intact comprehension and ability to communicate through writing, to a compete loss of all means of communication through any lingual, phonetic, and manual action [1, 5].

In the most advanced forms of motor aphasia, patients are unable to speak, read, or repeat words aloud. Yet, the lingual and phonatory apparatus is not paralyzed, and patients retain their ability to chew, swallow, and even vocalize without words. Occasionally, the words *yes* and *no* can be produced, and used within the context. Sometimes, patients can repeat several stereotypic words or phrases over and over again, as if compelled to do so, which is a symptom of *monophasia* (*recurring utterance*, *verbal stereotypy*, or *automatism*). If speech is possible,

certain habitual expressions, such as "Hi," and "Good morning," seem to be the easiest to produce. In the milder forms of the disorder, spontaneous speech is nonfluent, mute or telegraphic. Naming is impaired. The normal melody of speech is entirely lacking, and words are produced slowly and laboriously. The dysfluency takes the form of improper accent or stress on certain syllables, incorrect intonation and phrasing of words in a series, and pacing of word utterances. Speech is often sparse and consists only of nouns, transitive verbs, or important phrases. Length of phrases and sentences is reduced and many of the short words (articles, prepositions, etc.) are often omitted [4]. Repetition of spoken language is as abnormal as the patient's own speech. Language comprehension is intact with the exception of mild difficulties with grammatically complex phrases. Additionally, repeated patients usually recognize their errors and failures in speech, which may cause exasperation and despair [1].

Associated signs are right hemiparesis, right hemisensory loss, and depression. Most patients with Broca's aphasia have correspondingly severe difficulty with writing. If the dominant hand is paralyzed, the patient struggles with printing and writing with the non-dominant; letters are often malformed and words misspelled. Broca's aphasia is caused by lesion in the Broca's area in the posterior part of the inferior frontal gyrus, along with damage to adjacent cortical areas and subcortical white matter. Motor speech disorders, including severe motor aphasia and transient types, are generally due to vascular lesions. The most frequent type of vascular lesion that results in an abrupt onset or rapid regression is embolic infraction in the territory of upper main (rolandic) division of the middle cerebral artery [1, 4].

Aphemia: Aphemia is a rare variant of the Broca's aphasia. It is a nonfluent syndrome characterized by initial mutism followed by retaining ability to speak. However, the speech is characterized by phoneme substitutions and pauses. All other language functions are intact including the ability to communicate through writing. Aphemia is usually transitory and results from small lesions to the Broca's area or its subcortical white matter or the inferior precentral gyrus [1, 2].

Wernicke's aphasia (*sensory aphasia*): Wernicke's aphasia consists of two main elements: (1) an impairment in speech comprehension, or the inability to differentiate spoken and written word elements or phonemes, which reflects involvement of the auditory association areas or their separation form the primary auditory cortex; and (2) fluently articulated but paraphasic speech. Therefore, in Wernicke's aphasia speech is fluent with paraphasic errors. Naming is impaired and is often characterized by bizarre paraphrasic misnaming. Oral comprehension and repetition are impaired. Wernicke's aphasia is characterized by a visual language deficit that is reflected by the inability to read, *alexia* [1, 4].

Speech is produced without effort, and phrases and sentences are of normal length and are properly intonated and articulated. Despite normal articulation and prosody, the speech is meaningless, and the words do not convey any communicative value. Words themselves are frequently malformed or inappropriate, which is referred to as *paraphasia*. There are several types of paraphasias, depending on the type of paraphasic error: *literal paraphasia*, in which the patient substitutes phoneme or syllable within a word (i.e., "The apple is greel") and *verbal paraphasia* or *semantic substitution*, which is characterized by substituting one word with another (i.e., "The apple is blue"). *Neologisms*, or words that are not part of the language may also be observed (i.e., "The apple is prums"). Fluent paraphasic speech is often entirely incomprehensible, which is called *gibberish* or jargon *aphasia*. In Wernicke's aphasia patients seem to be unaware of the deficit. Although the motor apparatus required for the expression of language may be intact, the patients are unable to function socially due to communication difficulties. They are deprived of any means of linguistic communication. They cannot express themselves through language, and language comprehension is often limited to several simple commands. Writing is well formed and may contain some correct words; however, a majority of written words are meaningless. All these impairments are present in varying degrees depending on the exact site and size of the brain lesion. Right hemianopsia is sometimes associated with Wernicke's aphasia, but motor and sensory functions in the limbs are typically normal. Wernicke's aphasia is associated with the posterior perisylvian region (comprising posteriosuperior temporal, opecular supermarginal, and posterior insular gyri), and usually is due to embolic occlusion of the lower division of the left middle cerebral artery [1, 5].

Global aphasia (*total aphasia*): Global aphasia is the summation of Broca's and Wernicke's aphasias, in which all aspects of speech and language are affected. Speech is nonfluent or mute, but comprehension is also impaired. Naming, repetition, and writing are poor. At the most, patients are able to say only a few words, which are limited to cliché and/or habitual words or phases. They may understand several words or expressions; however, they fail to carry out a series of simple commands and name a series of objects. They cannot read written text or

repeat oral language. The patients often use meaningful gestures (i.e., greeting), avoidance reactions, and self-help activities [2, 4].

Most patients also present with dense right hemipharesis, hemisensory loss, and often, hemianopsia. The syndrome is due to lesion that affects a major part of the language area and the major cerebral hemisphere. The lesions are usually large and involve both the inferior frontal and superior temporal regions and often much of the intervening parietal lobe. The lesions are usually due to occlusion in the left internal carotid or middle cerebral artery, but it also may occur as a result of hemorrhage, or tumor [1, 5].

Dissociative syndromes (*disconnection syndromes*): Dissociative syndromes do not result from lesions to the cortical language areas but from the interruption of association pathways joining the primary receptive areas to the language areas. This category includes aphasias that are due to lesions separating the strictly receptive parts of the language mechanism form the motor ones and to lesions separating the perisylvian language areas from the other parts of the cerebral cortex [1, 5].

Conduction aphasia: Many features of conduction aphasia resemble these of Wernicke's aphasia. Similarly to Wernicke's aphasia, conduction aphasia is characterized by literal paraphasic errors. Naming is impaired; yet, contrastingly to Wernicke's aphasia, auditory comprehension is normal. Writing also is impaired. Patients have severe difficulties with repetition and reading aloud. Dysarthria and difficulties with prosody may also be present. Spontaneous speech is usually normal; however, some patients may presents with fluency difficulties and frequently hesitate due to self-correction. Hemianopsia and hemisensory loss are sometimes observed, but motor ability is preserved. Conduction aphasia is usually due to lesions that are located in the upper bank of the sylvian fissure and involve the supermarginal gyrus and, occasionally, the most posterior part of the superior temporal region [1, 2, 5].

Pure word deafness: This is an extremely rare syndrome characterized by an impairment of auditory comprehension and repetition and the inability to write words that are dictated. However, the abilities to read, write, name, and spontaneously speak are preserved. Hearing for pure tomes and non-linguistic noises (i.e., anime cries) are intact. Mild aphasic deficits, mostly paraphasic speech, are not uncommon. Pure word deafness is associated with lesions isolating the Wernicke's area from both Heschl's gyri (*disconnection syndrome*; [1, 2]).

Anomic aphasia (amnesic aphasia, nominal aphasia): The most frequent aphasic disturbance is word finding difficulty or anomia. Yet, anomic aphasia is diagnosed only when the anomic disturbance is the most prominent feature of the language difficulty. Anomic aphasia is characterized by the impaired access to the internal lexicon, which results in ability to name objects or phenomena. Simultaneous speech is normal with the exception of pauses, groping for words, circumlocution, and substituting word with another word or phrase that conveys the same meaning. Oral and reading comprehension and writing are intact. Isolated, severe anomia may be related to lesions in different parts of the language area [1, 2].

Transcortical aphasia: Transcortical aphasias are a result of lesions that separate cortical centers form the language circuit. There are three main transcortical aphasic syndromes: (1) Isolation Syndrome, in which patients have fluent and echolalic speech and present impaired oral comprehension, naming, reading and writing skills despite normal repetition ability; (2) Transcortical Motor Aphasia, which is characterized by nonfluent speech, impaired naming, and intact reading and repetition ability; and (3) Transcortical Sensory Aphasia, which is associated with fluent and echolalic speech with intact repetition and impaired naming, oral comprehension, reading, and writing abilities [1, 4].

Subcortical aphasia: Subcortical aphasias are caused by lesions that are localized in the basal ganglia or deep cerebral white matter of the dominant hemisphere. Subcortical lesions cause aphasia less commonly than cortical lesions, and the language functions affected are often atypical. Depending on the exact site of lesion, the symptoms may include anomia, dysarthria, lost capacity to speak while retaining the ability to write, understand spoken words, and comprehend written text. Generally, subcortical lesions are associated by syndromes that are difficult to classify and occur along with right hemipharesis [1, 4].

Alexia with agraphia: *Alexia* refers to the inability to read, and *agraphia* describes the inability to write despite previous literacy skills. Thus, alexia with agraphia is often referred to as "acquired illiteracy," in which previously educated patient loses the ability to read and write. Alexia with agraphia is generally observed along with a right hemianopsia and elements of the Garstmann syndrome: agraphia, acalculia, right-left disorientation, and finger agnosia. This type of aphasia is due to lesions in the inferior lobule, particularly the angular gyrus [2, 3].

Alexia without agraphia (*pure word blindness*, *visual verbal agnosia*): This is a rare syndrome, in which a literate person loses the ability to read, comprehend written script, and, often, to name colors. Patients are able to write; however, they are not able to read their own written productions. Speech, oral comprehension, and repetitions are normal. Naming, especially for colors, may be impaired. The disorder s commonly associated with right hemianopsia or upper quadrant defect. Alexia without agraphia is usually associated with a stroke in the territory of the left posterior cerebral artery, with infraction of the left visual cortex, particularly the geniculocalcarine tract, the connections of the right visual cortex with the intact language areas of the domain hemisphere [1, 2, 5].

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Aphasia Screening Test

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Definition

"Aphasia screening test" is a broad term applied to a variety of short screening measures which address potential language disorders related to aphasia and are employed by a variety of mental health professionals including neuropsychologists. Some of the tests go beyond language, such as the Aphasia screen test of the Halstead reitan neuropsychological test.

Description

The term aphasia means literally "without language" and is one of the most common consequences of a stroke [5]. When a patient presents with aphasia, it is important that clinicians be able to differentiate between different types of aphasia. Typically this involves differentiating between various types of aphasia. For more information about types and causes of aphasia go to *aphasia*.

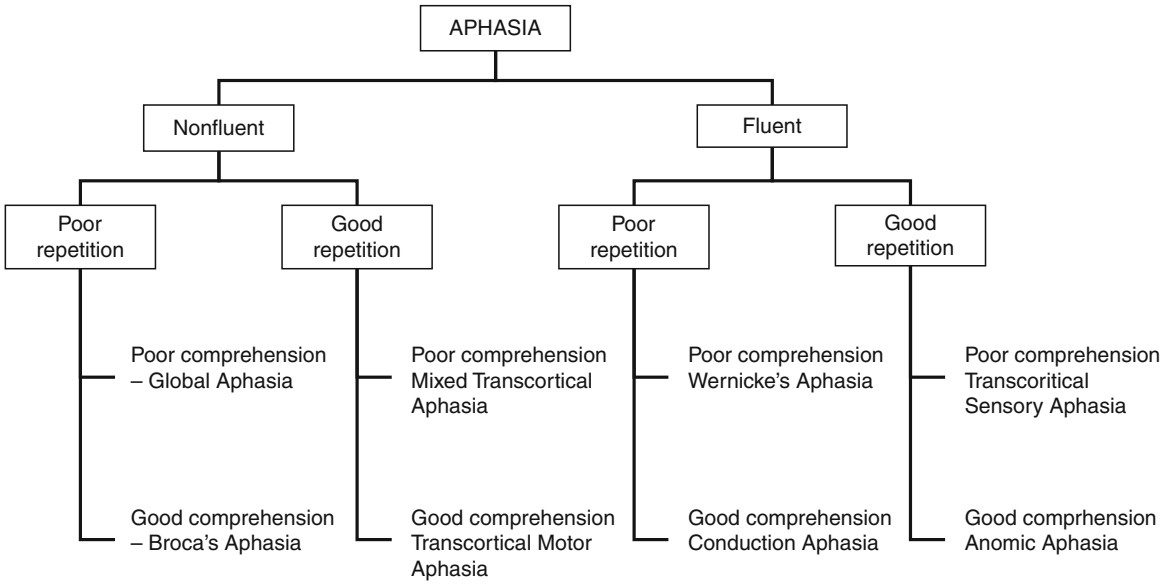
Examination

The examination of aphasia can take on a number of different looks and there are a number of accepted aphasia screening tests which are available. There are however some basic components which most aphasia screening tests will examine with the patient to help in diagnosis. Lezak (2004) suggested that when evaluating aphasias a review of language and speech functions will help an examiner to determine whether or not problems are present. The areas that Lezak suggests should be covered with verbal ability are:

1. Spontaneous speech
2. Repetition of words, phrases, sentences
3. Speech comprehension
4. Naming
5. Reading
6. Writing

The following examination is a common form of an Aphasia screening tests and is known as the Bedside Language Exam.

1. *Spontaneous speech* – observation of patient's speech and comprehension. The most important aspect of spontaneous speech is the fluency of the individual being tested, as well as attention and articulation.
2. *Naming* – naming is a test which asks patient to name objects, object parts, colors, pictures, of other items. In most aphasia screenings it's important to differentiate between recognition of objects and the ability to actually form and articulate the name of the object being presented.
3. *Auditory comprehension* – patients are asked to follow simple commands which are presented auditoorally. In many circumstances the tasks are presented as multistep commands that require the examinee to understand directions and then motorically carry out the commands.
4. *Repetition of words and phrases* – it is common to find difficulty with rapid consonant articulation and speech in rapid sequences.



Aphasia Screening Test. Fig. 1 Differential diagnoses for aphasic syndromes [3, 6].

5. *Reading* – examinees are asked to read aloud and then is tested on comprehension.
6. *Writing* – obtaining a writing sample provides a sample of expressive language but also allows the examiner to analyze spelling. Writing also tends to be seen as sensitive to the degree of aphasia.

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Aphasia Voluntaria

►Selective Mutism

Aphasia with Convulsive Disorder

►Childhood Aphasia

Aphemia

►Childhood Aphasia

Aplenzin

►Bupropion

Apnea

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Definition

An impermanent interruption of breathing during sleep.

Description

Apnea is a reoccurring obstruction of air from the lungs or a problem in the brain that controls respiration. This is a sleep disorder that can cause sleepiness during the day because of the disruption of sleep. Some times an individual can stop breathing during sleep and then struggle for air. This constant struggle for air affects the quality of sleep often leaving the person feeling drained. This condition has been found in infants, children and adults.

Relevance to Childhood Development

Sleep apnea in children can affect cognitive and behavioral difficulties. Often, sleep disorders in children have been over looked. Current research shows a relationship of sleep disorders with Attention Deficit Disorder.

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Appearance Satisfaction

►Body Image

Appearance-Reality Task

►False Belief Task

Applied Behavior Analysis (ABA)

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Synonyms

Applied behavioral assessment; Behavior analysis

Definition

Applied behavior analysis (ABA) is a scientific approach in which procedures based on the principles of behavior are systematically applied to identify environmental variables that influence socially significant behavior and are used to develop individualized and practical interventions [2–4].

Description

Rooted philosophically and theoretically in the science that informs the practice of Behaviorism, behavior analysis is an umbrella term that encompasses three interrelated branches including applied behavior analysis (ABA), experimental analysis of behavior (EAB), and behaviorism. ABA involves experimental single-subject designs used to demonstrate the functional relationship between environmental variables and socially significant problem behavior. Findings derived from ABA research embody the breadth of literature behavior analysts use to guide their professional practice. EAB also involves single-subject laboratory research; however, it is aimed at examining the effects of independent variables (i.e., treatment) on dependent variables (i.e., target behaviors) to clarify the basic principles of behavior further.

Although proposed nearly 40 years ago, Baer et al. coined seven dimensions that are still regarded as the primary criteria for defining and reviewing ABA as a science today [2, 3]. Foremost, they stated that a study must be *applied* or, in other words, socially significant to the individual and all related parties (i.e., parents, caregivers, teachers, etc.) and aim to improve the lives of others through meaningful interventions. Secondly, they claimed that studies must also be *behavioral*, in that the target behavior should be measurable, chosen based on importance and not convenience for others, and be closely monitored to insure that change is attributable to the individual and not external factors (i.e., the behavior of the researcher). A study in ABA must also be *analytic*, or demonstrate experimental control between the manipulated events, or the treatment, and the behavior of interest. In other words, the experimenter is able to demonstrate control over the occurrence and nonoccurrence of the target behavior. Another hallmark of an ABA study is that it must be *technological*, or provide sufficient detail to allow for replication of the behavioral procedures to produce similar results. Additionally, the behavioral procedures described should be *conceptually systematic*, or described using the basic ►behavioral principles from which they were derived, to facilitate and promote a cohesive discipline. Lastly, an ABA study must also be *effective* in deriving socially significant results for the

behavior under investigation and be *generalizable* longitudinally, across different contexts, and different behaviors. Additional ABA criteria were later proposed by Heward who suggested that the science was also accountable, public, doable, empowering, and optimistic [8].

There is an abundance of literature supporting the use of ABA in treating a wide topography of behaviors and related diagnoses. Much of the research produced in the field of ABA has been conducted with individuals diagnosed with developmental disabilities due to the severe behavioral excesses and deficits that commonly co-occur with these disorders. To name a few, Hagopian and Boelter cited studies in which ABA has been successfully used to treat aggression, self-injurious behavior (SIB), stereotypic behavior, and pica [6]. Furthermore, once the function of an aberrant behavior is identified, ABA-based procedures are then used to teach adaptive behaviors, such as communication, academic skills, and self-help skills, to replace behavioral deficits. ABA has been used to address behavioral excesses and deficits in individuals with the following diagnoses: ▶autism spectrum disorders (ASD), schizophrenia, mental retardation, attention deficit hyperactivity disorder, stereotypic movement disorder with self-injury, Down Syndrome and pediatric feeding disorders [6]. Lastly, ABA has also proven effective with typically developing populations to address more benign behavior issues, such as controlling personal habits, increasing athletic performance, and promoting a healthy lifestyle [4].

The field of ABA is broad and has been implemented in a wide range of settings and across a variety of behaviors. ABA procedures are commonly implemented in homes, schools, and hospital settings but have also been generalized to the community to address such issues as littering, recycling, unsafe driving, seatbelt use, and speeding [4, 15]. ABA is also implemented in businesses, industries, and in human services, to improve employee and supervisor performance, to address job safety, and to promote business productivity. Although procedures used in these types of settings are generally derived from basic behavioral principles and procedures, study in this setting is typically subsumed under industrial organizational psychology (I/O Psychology) or organizational behavior management (OBM).

Although it is often assumed that ABA is only one standardized treatment approach, there are a number of different applications used to address a variety of socially significant behaviors. There is a large body of empirical support for the use of ABA-based skill acquisition techniques and behavior reduction interventions. The UCLA Young Autism Project, or early intensive behavioral intervention (EIBI), developed by Ivar Lovaas is one of many applications of ABA used to optimize children's functioning [12]. Lovaas' method employs a standardized set of procedures, otherwise known as discrete trial training (DTT), which consists of one-to-one interaction with a therapist, delivery of clear and concise instructions, the use of three-step prompting procedures (i.e., "tell, show, do"), and the delivery of immediate and consistent reinforcement (see [11] for more information). Lovaas' early research was not only monumental in advancing the field of ABA and in facilitating a greater understanding of autism in preschool children, but it also emphasized the necessity of early and intensive intervention using behaviorally-based procedures to increase both language and academic skills [19].

Skinner's analysis of verbal behavior is yet another application of ABA that has been extensively reviewed and disseminated to a growing number of families of individuals with autism and other developmental disabilities. In his book, *Verbal Behavior*, Skinner provided a conceptual framework of what he termed to be controlling variables of language [18]. Unlike traditional linguists who generally conceptualize language based on meaning or syntax, Skinner examined language as verbal operants, which were each defined by their functional relationship to environmental events [17]. For instance, a child who learns to vocally request a toy would not be conceptualized as understanding what that word means or the timeliness of its use in a social context. Rather, through Skinner's analysis of verbal behavior, one would examine the antecedents, or motivating operations, that elicited the child's request, or mand, for the item and the consequences that maintain this verbal behavior across social environments. Therefore, the speaker and listeners' behaviors and the use of basic verbal operants are seen as the foundational building blocks for more sophisticated language. Typically, information about a child's pre-existing language repertoire, if any, is assessed using the assessment of basic language and learning skills (ABLLS). Information derived from this assessment is then used for establishing language or target goals that are then taught using intensive language training [17].

Another application of ABA that capitalizes on a child's motivation in the natural environment is Incidental Teaching. This procedure entails the instructor manipulating or structuring the learning environment so that preferred items and activities are used to create learning opportunities [13, 14]. This list of commonly used skill acquisition procedures is not exhaustive; however, it does represent the diverse ways in which ABA, namely the principles of behavior, are used to teach or improve behavior.

Behavior reduction interventions and techniques used in the field of ABA focus on the operant functions of

a target behavior as opposed to attributing its occurrence to an underlying pathology [1]. Specifically, ABA focuses on antecedents and consequences that can be used to alter or reduce problem behavior [10]. Antecedents are stimuli, settings, and contexts that occur before a target behavior; consequences are events that follow a target behavior. Furthermore, consequences for behavior rely heavily on positive and negative reinforcement and positive and negative punishment [10]. Behaviors become associated with and highly influenced by certain types of consequences or antecedents that can either increase or decrease the likelihood of the occurrence of that behavior.

One of the most common ABA-based procedures for identifying operant functions of problem behavior involves a unique assessment technique known as a functional behavior assessment (FBA). This comprehensive assessment method is designed to systematically identify variables responsible for maintaining problematic behavior through record reviews, indirect assessments or interviews with caregivers, direct assessments through observations, and a functional analysis (FA), which involves the experimental manipulation of environmental events. Based on the results of the indirect and direct assessments of the FBA, hypotheses regarding the variables maintaining problem behavior are formulated and tested during the FA. The results from this analysis yield information pertaining to the maintaining variables of problem behavior, which are then used to identify and test probable intervention(s) through a treatment analysis (TA). Because there are many different approaches one can take in reducing problem behavior (e.g., reinforcement-based treatments, such as differential reinforcement, and punishment-based treatments, such as time-out procedures), a TA is typically conducted in an analog setting to ensure the effectiveness of the treatment selection prior to generalizing it in to the natural environment.

Seminal Figures

Although a complete historical account of the evolution of ABA is beyond the scope of this reference (see [2–4, 10], suggested resources for more information), a review of some of the early seminal leaders and the revolutionary work upon which the scientific principles of ABA are based is both noteworthy and warranted. The foundation of ABA began with the early proclamations of Charles Darwin (1809-1882), who focused his research efforts on evolution and the continuity among species. Specifically, he recognized that humans and infrahumans, although different, were subject to similar influences and principles based on survival. This declaration by Darwin spawned the importance of the study of animal behavior in order to gain a greater understanding of human behavior.

Animal research continued to serve a prominent role in the study of behavior through the work of Ivan Pavlov (1849-1936), who unveiled the processes of respondent conditioning, and Edward Thorndike (1874-1949), whose experiments with felines led to the development of the Law of Effect. John B. Watson (1878-1958), who was a seminal leader in the movement towards behaviorism, is recognized for his development of stimulus-response (S-R) psychology, which focused solely on direct observation of environmental stimuli (S) and the responses the stimuli evoked (R). B.F. Skinner (1904-1990) later expanded the work of Watson and the field of behaviorism through the publication of his book, *The Behavior of Organisms* (1938/1966). In this great work, he recognized Pavolv's S-R psychology as respondent behavior and, because he found that it was unable to explain the mechanisms responsible for spontaneous or voluntary behavior, Skinner coined what he called operant behavior or operant conditioning. His discovery of the three-term contingency (Antecedent-Behavior-Consequence) and his successful account of these basic principles in identifying a functional relationship between human behavior and one's environment marked the beginning of experimental behavior analysis and behavior modification. Skinner is also well known for his extensive writings on the philosophy of this science, which later came to be known as "radical behaviorism" [4]. In 1968, the publication of the *Journal of Applied Behavior Analysis* (JABA), which was the first journal in the Unites States to address applied behavioral problems, marked the formal beginning of contemporary ABA [4]. To date, this publication continues to provide researchers with new methodological variations on the assessment and treatment of aberrant behavior and serves as a launching ground for the publication of current trends and novel work.

Despite its growth within the past 40 years, ABA is still a new science with much to be researched and explored. Ongoing trends in ABA research are its continual efforts to examine variations in the use of basic behavioral principles and methods, focusing on the overall effectiveness of treatment methodologies, and evaluating the social validity of treatment interventions. In a report analyzing current trends in presentations at annual conferences for the Association of Behavior Analysis (ABA), Kangas and Vaidya [9] reported that the number of registered attendees has increased from 21 to 346% since its original inception in 1974. Furthermore, they found that applied research, or ABA presentations generally outnumbered both basic and conceptual research and have concentrated more on topics related to autism, developmental disabilities, and education. Another trend in the field of ABA is

the increasing number of researchers seeking certification as board-certified behavior analysts (BCBA) or board-certified associate behavior analysts (BCABA) since its initiation in 1998. The growing popularity of obtaining certification would suggest that many researchers are now eager to put the empirically-based behavior analytic procedures they have investigated into practice.

Relevance to Childhood Development

As noted previously, many of the research efforts in the field of ABA have focused on individuals diagnosed with ASD [15]. From the behavioral analytic perspective, autism and ASD are characterized as syndromes of behavioral deficits and excesses [5]. Behavioral deficits of children with autism include language or communication impairments, failure to develop peer relationships, and an inability to engage appropriately in reciprocal social interactions. Behavioral excesses may take the form of aggression, self-stimulatory behaviors, or SIB. ABA has been used to treat these behavioral deficits through skill acquisition techniques, such as those mentioned previously, and behavioral excesses through a variety of differential reinforcement interventions paired with extinction. The individualized procedures of ABA that are systematically applied to behavior not only help to bring about change, but ultimately alter the developmental trajectory of children with autism [7].

ABA-based procedures used for assessing and treating comorbid behaviors related to this diagnosis and for teaching these children have been extensively researched and empirically supported [6]. Furthermore, based on the empirical evidence produced by ABA interventions, many professional and government agencies have recognized treatments derived from these principles as both highly effective and as best-practice procedures. Specifically, a report published by the National Research Counsel of the National Association of School Psychologists (NASP) summarizing necessary components of effective interventions for children with autism recommended active participation in intensive ABA programming for a minimum of 25 h per week, which is equivalent to a full school day for 5 days a week [16]. Additionally, the Surgeon General of the United States recognized ABA as the treatment of choice for children diagnosed with ASD: "Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and increasing communication, learning, and appropriate social behavior" [20].

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Suggested Resources

Journal of Applied Behavior Analysis at http://seab.envmed.rochester.edu/jaba/

Behavior Analysts Certification Board at http://www.bacb.com/cues/frame_about.html

Applied Behavioral Assessment

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Synonyms

Applied behavior analysis (ABA); Operant learning and applied behavior analysis (ABA)

Definition

Applied behavior analysis (ABA) is the branch of psychology that is devoted to understanding and improving socially important human behavior ([1], p. 63). Furthermore, it involves the scientific study of behavior through the use of techniques underlying positive behavior support. ABA uses the principles of operant psychology to reduce problem behavior or increase positive behavior ([2], p. 321).

Description

Practitioners who use operant learning and applied behavior analysis principles as a part of their practice believe that behavior is learned and therefore can be unlearned, or that the individual involved can be taught new behaviors ([3], p. 32.) Using an ABA approach, the teacher or therapist analyzes an observable behavior and the antecedents and consequences which seem to support the behavior. An antecedent is defined as "an environmental event or stimulus that precedes a behavior and influences the probability that it will recur in the future" ([3], p. 32); therefore, it is imperative to identify antecedents. Additionally, an analysis of behavior consequences is equally important because behavior is controlled by the consequences that follow it ([3], p. 33).

Following the analysis of a behavior in the context of antecedents and consequences, a behavior intervention plan can then be designed to manipulate them so that a new behavior can be taught or an undesirable behavior can be eliminated. There are specific principles and practices which promote the increase of desirable behaviors, and different principles and practices are available to decrease undesirable behaviors. Appropriate principles/strategies are incorporated into the behavior intervention plan depending upon the objective derived from the target behavior.

Relevance to Childhood Development

Typically, children learn developmentally appropriate academic and social skills without direct instruction or intervention; yet some children, including individuals with special needs and those specifically with emotional and behavior disorders, require a structured environment designed to provide the conditions to learn appropriate academic and social skills. Applied behavior analysis is used by learning therapists, teachers and other professionals as a systematic and data driven approach to the teaching and charting of academic and social skills. The methodology is frequently used to understand and plan interventions which address the inappropriate behaviors of students with emotional and behavior disorders (EBD) [4].

Typical ABA Training Assignment

Learning therapists, teachers and other professionals who are interested in the role of environment in behavior change are taught to use ABA principles in a systematic manner as a teaching and assessment tool leading to data-based teaching and charting of academic and social behaviors. The following set of training instructions written in a step by step format serves as typical assignment given to behavior interventionists to help them design a behavior intervention plan to be implemented in an applied setting using ABA principles.

Applied Behavior Analysis (ABA) Behavior Intervention Plan

An ABA behavior intervention plan will be required in this course on *one student* or a *small group of students* in a classroom or other approved setting concerning an *academic* or *social behavior* you feel needs to be addressed through an intervention. If you choose to address *an academic behavior*, you must identify an academic task or task sequence that student/s must learn or improve. If you choose to target *a social behavior*, you will observe and record *one appropriate behavior* which needs to be increased *"or" one inappropriate behavior* which needs to be decreased.

In either case, you will be required to observe and record the behavior as it is occurring in *baseline condition* and during your *treatment condition*. You will need 3–5 pinpoints of data for the baseline condition, and 7–10 pinpoints of data for the treatment condition. (Approximately 15 contact sessions with student/s.) You will be required to graph the data collected and to submit it with a written report concerning the total project following the format below.

Directions: Respond to All of the Questions Below. Be as *Specific* as You Can

1. General description of the behavior problem and purpose of the behavioral intervention plan.
2. *Subject*: General description; use first name only.
3. *Setting*: Where will the plan be carried out?
4. *Target behavior*: Explain the behavior you have chosen and why. Provide the label you have given the behavior, and define it within the context of your project.
5. *Objective of behavior intervention plan*: State a measurable behavioral objective (BO) for the plan to include the following components and written in one long sentence format: conditions (setting/circumstances), behavior (action verb), criteria (degree of mastery), evaluation (method used to evaluate), and time expectation (when behavior is to occur).
6. *Baseline phase*: Explain the baseline condition. Describe your observations and the development of your record keeping. How was the baseline target behavior recorded? What measurement/graphing techniques were employed? If any special equipment and/or forms are used, please attach and explain. *Be detailed.*
7. *Intervention phase*: What will you do to meet your stated objective? Explain a selected treatment procedure and how it was carried out. Be sure to refer to textbooks, professional journals, etc. as you develop your intervention procedures. *Be specific.* Explain *in detail* how the intervention was done to improve the behavior. Then, *select* two (2) *additional treatments* which you "*might*" use if your first treatment failed. Explain how you will carry out these interventions in detail.
8. *Raw results*: Report the Mean of Baseline and Treatment data collected. Graph on a line graph both baseline and intervention phases.
9. *Maintenance and generalization*: Explain in writing what features you might design into your program to increase the probability that desired behavior change *will be maintained* after treatment.
10. *Rationale/defense/additional comments*: Explain the usefulness, practicality, generalizability, and possible long range effects of your proposed plan. In short, defend it! How do you know this will benefit the child? What made you think your first intervention would effectively change the behavior? You will build a stronger defense if you refer to textbooks, professional journals, etc. and cite references.

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Apprehension

►Anxiety

Appropriateness

►Validity

Apraxia

Apraxia is a disorder of motor planning. Apraxia comes from the Greek praxis for an act, work or deed preceded by privativea meaning without. Apraxia is a disorder caused by damage to specific areas of the brain leading to the loss of ability to execute or carry out learned, purposeful movements despite having the desire and physical ability to perform the movements. It can be acquired or related to atypical development. Apraxia is different from abulia in which individuals do not have the interest or desire to carry out an action and allochiria in which individuals confuse one side of the body with the other.

Archival Research

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Definition

This methodology is primarily concerned with the examination of historical documents. Secondarily, it is concerned with any recorded data. All data are examined ex-post-factor by the researcher [1].

Description

Unobtrusive methods are archival records where one is given the opportunity to assess the impact of natural events and examine other issues. They are strong on external validity because of the subjects unawareness of the research or its aims. When using archival records, we must control for the possibility of internal invalidity or spurious relationships. Archival research may require the collection of additional data and temperature records. A significant issue in archival research is construct validity and reliability of the data for research purposes. Archives are subject to gaps and incompleteness that make it difficult to determine whether the data, which was available, represented the population, which was of interest. The use of archives is economical, the researcher is spared the time and costs in data collection and recording. The advantage to archival data is availability of extensive data drawn from high-quality samples over time, which would be beyond the ability of the researcher to collect themselves or herself. Low cost is involved when using archival data [2].

Arcuate Fasciculus

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Synonyms

Arcuate fasciculus

Definition

Arcuate fasciculus: The arcuate fasciculus is a bundle of fibers that serves as the neural pathway connecting the expressive (i.e., Broca's area) and receptive (i.e., Wernicke's area) language areas to one another and plays a vital role in repetition [3].

Description

The arcuate fasciculus is a neural pathway compiled of fiber bundles that extend anteriorly from the posterior portion of the temporal lobe to the posterior region of the inferior prefrontal lobe, thereby linking the expressive (i.e., Broca's area) and receptive (i.e., Wernicke's area) language centers of the cortex [2, 3]. In terms of neurocognitive functioning, the arcuate fasciculus is said to play a vital role in repetition [1]. Specifically, as auditory information comes into the neural system that is to be repeated, it is first processed by the receptive center of the brain (i.e., Wernicke's). Upon recognizing the nature of the information to be repeated, the neuronal transmission must be sent anteriorly to the expressive center by way of the arcuate fasciculus in order for the word or phrase to be said [3]. As such, lesions of the arcuate fasciculus have been attributed to manifestations of conduction aphasia in which speech remains and largely preserved, as does comprehension, yet repetition is impaired due to a disruption of this posterior to anterior transmission [1]. While repetition may be the most recognized function the arcuate fasciculus plays a vital role in modulating, it may also be important in reading aloud [3].

Receptive language skills involve reading, in addition to auditory comprehension [3]. While silent reading appears preserved in lesions of the arcuate fasciculus, reading aloud may be impaired [3]. Specifically, the prior (i.e., silent reading) appears to not require anterior transmission thus the function is not dependent upon the integrity of the arcuate fasciculus pathway and rather ends transmission at Wernicke's area. However, reading aloud involves reception as well as an anterior transmission to Broca's area in order to say the material aloud [2]. In this way, reading aloud may be dependent upon the integrity of the arcuate fasciculus and thus demonstrate dysfunction in those cases where this structure is impaired in some way.

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Aripiprazole (Generic Name)

►Abilify

Arithmetic

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Synonyms

Basic number facts; Operations

Definition

Arithmetic is the understanding and use of the mathematic operations of addition, subtraction, multiplication, and division.

Description

Arithmetic is a multi-component process that includes the abilities to complete addition, subtraction, multiplication, and division operations, to recall basic number facts, and to understand and apply the principles and the relationships of the operations to solve problems.

The acquisition of arithmetic skills is based upon the understanding of the number system. This includes the concepts of counting, cardinality, and adjusting sets to change number value. Children learn to combine sets to develop the understanding of addition. Reversing the process leads to the understanding of subtraction and the relationship between the operations. Also, children use counting strategies when learning to compute addition and subtraction problems. As children gain experience with adding and subtracting, the basic number facts become more automatic and are registered in long-term memory for access.

Children learn to group numbers into equal sets. Combining the equal groups, or repeated addition, leads to the understanding of multiplication. At a young age, children learn to share an item or an amount among their friends thus learning the underpinning of division. More commonly, children learn division as the reverse operation to multiplication. The basic operations of addition, subtraction, multiplication, and division are the foundations for calculating the results of quantitative situations.

Procedural knowledge and the understanding of arithmetic principles are included in the construct of arithmetic. Procedural knowledge is the understanding of the steps needed to perform the operation. The principles or the properties of arithmetic include the commutative, the associate, and the distributive properties. Understanding and applying the properties of arithmetic are necessary to solve complex mathematical statements.

Arithmetic is a component of mathematic proficiency.

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Arithmetic Operations

►Computational Skills

Army Alpha Examination

►Army Alpha Intelligence Test

Army Alpha Intelligence Test

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Synonyms

Army Alpha Examination; U.S. Army Alpha Intelligence Test

Definition

The Army Alpha [5] was developed shortly after the United States entered World War I by an American Psychological Association (APA) Committee on the Psychological Examination of Recruits, led by ►Robert Yerkes. It was one of three intelligence tests that were designed to identify Army recruits with low intelligence and allow for the recognition of those who were candidates for special assignments and officer-training schools. The Army Alpha emphasized verbal skills, and was given to all recruits.

Description

Development of the Army Alpha

Once the United States decided to enter World War I, Robert Yerkes, the President of the APA at the time, was anxious to show the value of the field of psychology and the unique contribution it could make to the war effort. He first approached the United States Navy but was turned down; however, the United States Army was agreeable to have APA assist the war effort. They

responded by setting up twelve committees, one of which, the Committee on the Psychological Examination of Recruits, was chaired by Yerkes. This committee was tasked with developing a quick-to-administer intelligence test to be used when deciding what sort of advanced training a recruit would receive. Yerkes, Lewis Terman, David Wechsler and other committee members collaborated to develop three such tests, the Army Alpha, the Army Beta (for non-English speakers and illiterate recruits), and an Individual Examination (a spoken test for those who failed the Beta).

The Army Alpha emphasized verbal abilities and was based on the previous work of Arthur Otis, Henry Herbert Goddard and Leon Lewis Thurstone, pioneers in the young field of intelligence testing and the quantification of cognitive skills. For those developing the test, "...the critical points were abilities to understand language to perform reasoning with semantic and quantitative relationships, to make 'practical judgments,' to infer rules and regularities from data, and to recall general information" ([1], p. 36). The test took 25 min to administer (via group administration), was made up of eight subtests, and produced a ▶mental age score.

A trial was conducted with the test on 80,000 men. The army was happy with the trial and agreed to test all new recruits beginning in 1918. The tests were administered at a rate of 200,000 per month, and over 1,750,000 had been administered by the end of the war in November of 1918 [2].

Data and Findings

After the war, the data from the Army Alpha and Beta were analyzed, with surprising results. It appeared that the average recruit had a mental age of around 13 – a mild level of retardation. Also, data showed it was possible to grade European immigrants by their country of origin, and the average score of Black men was 10.4, which was considerably below the White average. The reason for this had to do mainly with the level of education of the recruits rather than low native intelligence, but Yerkes and others concluded incorrectly that the intelligence deficit was real, sounding alarm bells about the "menace of the feeble-minded" and the idea that the average scores from the different national groups reflected innate racial differences [3].

At least partly based on Yerkes' findings, the United States Congress passed the Immigration Restriction Act (1924), which set immigration quotas based on the US population in 1890 (immigration from Southern and Eastern Europe had been relatively low before this date).

Criticisms and Confounds

Gould [4] presented criticisms and confounds associated with the use of the Army Alpha and Army Beta, in particular the cultural bias in the tests. There were also a number of problems in the administration of the tests. In particular, many who were unable to read English were still given the Alpha test and obtained a score of zero or close to zero, and those who failed the Alpha test were often not given an opportunity to take the Beta test, on which they may have performed at a higher level. Test conditions were also an issue. For example, the time allowed was insufficient and anxiety surrounded the whole procedure. Gould writes that with such confounds, the data should be looked at with considerable doubt.

Lasting Influence

Despite the confounds involved in the administration of and resulting data from the group of tests developed by Yerkes and his colleagues for use during World War I, their use marked two important shifts in intelligence testing that helped shape the field. It expanded the idea of intelligence testing to include group, rather than only individual, administration. Also, scores were now being used for positive as well as negative selection. Instead of scores indicating what an individual could not accomplish, scores were being used to predict what one might accomplish.

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Army Beta Examination

▶Army Beta Intelligence Test

Army Beta Intelligence Test

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Synonyms

Army beta examination; U.S. army beta intelligence test

Definition

The Army Beta [4] was a non-verbal intelligence test developed shortly after the United States entered World War I by an ►American Psychological Association (APA) Committee on the Psychological Examination of Recruits , led by Robert Yerkes. It was given to non-English speaking and/or illiterate Army recruits in order to assess for low intelligence and allow for the recognition of those who were candidates for special assignments and officer-training schools.

Description

Development of the Army Beta

Once the United States decided to enter World War I, Robert Yerkes, the President of the APA at the time, was anxious to show the value of the field of psychology and the unique contribution it could make to the war effort. He first approached the United States Navy but was turned down; however, the United States Army was agreeable to have APA assist the war effort. They responded by setting up twelve committees, one of which, the Committee on the Psychological Examination of Recruits, was chaired by Yerkes. This committee was tasked with developing a quick-to-administer intelligence test to be used when deciding what sort of advanced training a recruit would receive. Yerkes, Lewis Terman, David Wechsler and other committee members collaborated to develop three such tests, one of which was the Army Beta.

The Army Beta emphasized non-verbal abilities, and required recruits to complete mazes, complete pictures with missing elements, recognize patterns in a series, and solve puzzles. The Army Beta was group administered, strictly timed. and was given to those who either performed badly on the verbally-oriented ►Army Alpha Intelligence Test or those who were non-English speaking or illiterate. Also, in determining who should take the Beta test, decisions were made frequently in terms of the number of years of education reported. Generally, those with fewer than 4, 5, or 6 years of education were sent to Beta testing [2].

Like the Army Alpha, test development was based on the previous work of Arthur Otis, Henry Herbert Goddard and Leon Lewis Thurstone, pioneers in the young field of intelligence testing and the quantification of cognitive skills. The test took 25 min to administer (via group administration), was made up of seven subtests, and produced a mental age score. Due to the fact that examinees were thought to be non-English speaking, instructions were given in pantomime by the examiner and his aides.

A trial was conducted with the test on 80,000 men. The army was happy with the trial and agreed to test all new recruits beginning in 1918. The tests were administered at a rate of 200,000 per month, and over 1,750,000 had been administered by the end of the war in November of 1918 [1].

Data and Findings

After the war, the data from the Army Beta (as well as the Army Alpha) were analyzed, with surprising results. It appeared that the average recruit had a mental age of around 13 – a mild level of retardation. Also, data showed it was possible to grade European immigrants by their country of origin, and the average score of Black men was 10.4, which was considerably below the White average. The reason for this had to do mainly with the level of education of the recruits rather than low native intelligence, but Yerkes and others concluded incorrectly that the intelligence deficit was real, sounding alarm bells about the "menace of the feeble-minded" and the idea that the average scores from the different national groups reflected innate racial differences.

At least partly based on Yerkes' findings, the United States Congress passed the Immigration Restriction Act (1924), which set immigration quotas based on the US population in 1890 (immigration from Southern and Eastern Europe had been relatively low before this date).

Criticisms and Confounds

Gould [3] presented criticisms and confounds associated with the use of the Army Beta (and the Army Alpha), in particular the cultural bias in the tests. Gould noticed that even though the Beta was non-verbal, there still were items that were heavily culturally loaded. Also, administration issues were present that could have biased the results cited by Yerkes and his colleagues. For example, recruits who performed poorly on the Army Alpha were often not given the Army Beta, preventing a true measure of their cognitive skills. Finally, Gould writes that test conditions, such as too little time to take the test and test-related anxiety that accumulated amongst recruits, likely had a negative effect on performance. Due to the presence of issues with bias, administration, and testing conditions, Gould points

out that the findings generated from Army testing during World War I should be viewed with extreme skepticism.

Lasting Influence

Despite the confounds involved in the administration of and resulting data from the group of tests (including the Army Beta) developed by Yerkes and his colleagues for use during World War I, their use marked two important shifts in intelligence testing that helped shape the field. It expanded the idea of intelligence testing to include group, rather than only individual, administration. Also, scores were now being used for positive as well as negative selection. Instead of scores indicating what an individual could not accomplish, scores were being used to predict what one might accomplish.

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Art as Therapy

►Art Therapy

Art Psychotherapy

►Art Therapy

Art Therapy

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Synonyms

Art as therapy; Art psychotherapy; Clinical art therapy; Expressive therapy; Inner landscapes; Play-group therapy; Psychoaesthetics

Definition

Art therapy is a mental health intervention that uses art and the creative process as a central modality. The goal of art therapy, as with any form of therapeutic intervention, is to improve the lives of individuals. Art therapy can be a creative endeavor for expression of feelings, healing painful experiences and a form of retreat.

Description

The therapeutic benefit of making art has been recognized for hundreds of years; however, it has only been in the past century that art therapy has developed into a profession capable of helping individuals to develop insight, solve problems, and resolve conflicts [8]. In art therapy, the focus is on the individual's inner experience, that is, their feelings and perceptions. The art that is created is based on these feelings rather than on something the individual sees. There are many therapeutic orientations in the field of art therapy but most can be categorized in one of two ways [6]. In the first category, the emphasis of the art therapy is on the healing to be found in the process of creating art. This is sometimes referred to as "art as therapy" [6]. The act of making art is viewed as an opportunity for self-expression that can lead to a healthier, happier life. The process of making art is fulfilling and transforming. In the second category, the product that is created within the art therapy session is viewed as a means of communicating symbolically. The drawing, painting, or other artwork is used to communicate the individual's emotions or conflicts. This approach to art therapy is frequently called "art psychotherapy." Psychotherapy is especially important in this approach and the artwork is used to open a verbal exchange between the art therapist and the client. In their discussions of the art, clients develop insights and are able to work through their problems with a better understanding of their own feelings and behaviors [6].

Art therapy integrates a number of fields, including the study of human development, training in the visual arts (i.e., drawing, painting, etc.), and training in counseling and psychotherapy. Art therapists are trained to the level of Master's degree in art therapy or a related field such as counseling. Courses in ethical standards of practice; assessment and evaluation; individual, group, and family counseling techniques; multicultural issues; and research methods are required for practice as an art therapist [1]. Before they begin practice, art therapists spend hundreds of hours completing practicum or internship experiences in clinical, community, or other settings.

Art therapy is used with children, adolescents, and families for a number of mental health or developmental

issues, including depression, anxiety, autism, sexual abuse, posttraumatic stress disorder, substance abuse, and domestic violence [2, 7–9]. Art therapists work in schools, hospitals, community clinics, public and community agencies, and in private practice. They are frequently among the first responders in natural disasters such as the tsunami that hit Sri Lanka and Hurricane Katrina, and to manmade disasters such as the terroristic attack on New York City on September 11, 2001 [3, 5]. In a review of research on art therapy with children, Eaton et al. [4] found art therapy to be very effective in the treatment of children who had experienced trauma. Art therapy provides children a safe outlet for expressing their thoughts, emotions, grief, and/or pain.

Relevance to Childhood Development

Children learn by doing and art therapy helps with fine motor coordination. When children draw or paint it helps in their developmental processes. This correlates with play therapy to understand symbols to help with speech and mirroring. Children need to continue with artistic practice to help the child how to understand how things are made. Clay can help children to see three dimensionally and to help with the development of the brain. Creativity walks hand and hand with art therapy. It is the process not the produce that enhances a child's growth and feelings of well-being. Working on group projects teaches children to be a part of society and to work with others. Children with autism can benefit from the approach and treatment of art therapy.

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Articulation Disorder

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Synonyms

Phonological disorders

Definition

Articulation disorders are difficulties with the way sounds are formed and strung together, usually characterized by substituting one sound for another (wabbit for rabbit), omitting a sound (han for hand), or distorting a sound (ship for sip).

Description

The main characteristic of the disorder is: Omissions - Sounds in words and sentences may be completely omitted. (i.e.) "I go o coo o the bu." for "I go to school on the bus." Substitutions – Children do not pronounce the sounds clearly or they replace one sound for another. (i.e.) Substitutes [w] for [l] or [r], or other similar errors Distortions – An attempt is made at the correct sound but it results in a poor production. (i.e.) a distorted/s/sound may whistle, or the tongue may be thrusting between the teeth causing a frontal lisp. Additions – Extra sounds or syllables are added to the word. (i.e.) animamal.

The most common error sounds are [s] [l] and [r]. The speech is primarily unintelligible and difficult to understand. Articulation patterns that can be attributed to cultural or ethnic background are not disabilities. Developmental delay, is the cause of most articulation disorders. This can be the direct result- of hearing problems. The child cannot hear the fine differences between sounds, so speech perception is inhibited. Articulation disorders are also associated with overall delayed language development. *Differential Diagnosis*: Some disorders have similar symptoms. The clinician, therefore, in his diagnostic attempt, has to differentiate against the following

disorders, which need to be ruled out to establish a precise diagnosis. An articulation problem sometimes sounds like baby talk because many very young children do mispronounce sounds, syllables, and words. *Cause*: In many cases, there is not a clearly identifiable, structural or physiological reason for the problem.

Articulation problems may result from brain damage or neurological dysfunction, physical handicaps, such as cerebral palsy, cleft palate or hearing loss. Or the condition may be related to lack of coordination of the movements of the mouth, even dental problems. However, most articulation problems occur in the absence of any obvious physical disability. The cause of these so-called functional articulation problems may be faulty learning of speech sounds. *Treatment*: A speech evaluation should be performed by a speech-language pathologist. If there is a problem with articulation that is not developmental in nature, speech therapy is recommended. Parent involvement is necessary for the best progress and prognosis. The length of therapy can vary from 3 months to a number of years, depending on the cause, the severity, the child's motivation, and parental support. http://www.psychneuk.com/dsm_iv/speech_articulation_disorder.htm

Articulation Voice, or Fluency Therapy

►Speech Therapy

Articulatory Loop

►Phonological Loop

Asperger's Disorder

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Synonyms

Asperger's syndrome

Definition

Asperger's Disorder is a pervasive developmental disorder characterized by impairments in social interactions; communication; play and imagination; and the development of repetitive patterns of restricted, repetitive patterns of behavior, interests, and activities [1]. It is considered one of the higher functioning Autism Spectrum Disorders.

Description

Asperger's Disorder was named after Hans Asperger, an Austrian physician, who published case descriptions of individuals displaying autistic psychopathy in 1944. The individuals described by Asperger were not as socially withdrawn as individuals with autism but their social deficits were severe with social interactions that were one-sided and lacking reciprocity [2]. Characteristics of Asperger's Disorder vary among individuals and range from severe to mild impairment. Common characteristics include impaired social interaction, behavior that is limited and repetitive, and restricted interests and activities [1]. Unlike individuals with autism, individuals with Asperger's Disorder do not have clinically significant cognitive delays or delays in language acquisition prior to the age of two.

Social Challenges

Social deficits are the most striking feature of Asperger's Disorder. Four qualitative impairments in social interactions have been reported and individuals with Asperger's Disorder may have one or more of them. First, there is impairment in the individual's use of nonverbal behaviors such as eye contact, facial expressions, body postures, and gestures to regulate social interaction. Second, there is a failure to develop peer relationships appropriate to developmental level. Many children with Asperger's Disorder seek out and feel more comfortable in the company of adults or younger peers. Third, individuals with Asperger's Disorder do not seek out opportunities to share with others. Fourth, their relationships lack reciprocity or mutual exchange [1]. Social challenges associated with Asperger's Disorder include a lack of understanding of social cues and subtleties, literal interpretation of others' words, difficulty engaging in reciprocal conversation, a tendency to speak bluntly without regard for the impact of their words on others, and focus on a single topic of interest that may not be of interest to others [7].

Although preschool-aged children with Asperger's Disorder can be difficult to diagnose because there is not the language delay associated with other autism spectrum disorders, they tend to be slower to warm up to others than their typically developing peers and they form relationships with adults but have difficulty interacting appropriately with same-age peers [3]. Social deficits continue across childhood. In elementary school, children

with Asperger's Disorder tend to be quiet and unassuming or to have behaviors that violate social boundaries in their enthusiasm. They need to be taught the social skills that other children pick up naturally from the environment and, even when these skills are taught, children with Asperger's Disorder have difficulty generalizing the skills to other social situations [3]. Middle school aged children with Asperger's Disorder are often described as silly, rude, or very inappropriate. They stand out among their peer group due to their inability to read the social cues of their peers, awkward body posture, awkward use of gestures, annoying habits (such as making noises), highly variable eye contact, and excessive talking about one topic of interest [3]. Most prefer solitary activities and spending time alone. In high school, social interactions continue to be the greatest challenge and, despite some improvement, can result in frustration, anxiety, and depression.

Restricted Patterns of Behavior, Interests, and Activities

Four types of impairments in restricted, repetitive and stereotyped patterns of behaviors, interests, and activities have been noted in children with Asperger's Disorder. The first is an all-consuming interest or focus on a particular topic. They may spend an inordinate amount of time collecting factual information about their topic of interest. Frequently noted topics include dinosaurs, video games, electronic devices, and historical events or figures. Second, individuals with Asperger's Disorder engage in specific, nonfunctional routines or rituals that can be time-consuming and frustrating to those around them. When the routine is disrupted, individuals with Asperger's Disorder can become anxious and engage in inappropriate behaviors. A third type of restricted behavior (seen more frequently in younger children) is stereotyped and repetitive motor movements such as hand or finger flapping or twisting. This appears to decrease with maturity but may be evident in adolescents when they are anxious or stressed. Finally, there may also be persistent preoccupation with parts of objects such as the wheels on a toy vehicle. Children with Asperger's Disorder may engage in each of these types of repetitive behaviors. Repetitive object use, motor movements, and rigid routines appear to be worse in the early years while circumscribed interests worsen with time [6].

Social Communication

Asperger's Disorder is not associated with a language acquisition delay; however, several communication differences have been reported, including poor prosody or speech rhythm, tangential and circumstantial speech, and verbosity [5]. Individuals with Asperger's Disorder tend to engage in long monologues about their topic of interest, not wanting to change the subject, and not noticing when others stop listening. Other communication challenges for individuals with Asperger's Disorder can include difficulty understanding social nuances such as sarcasm or metaphor, echolalia (repeating last words heard without regard for meaning), abnormal inflection and eye contact, inappropriate facial expressions or gestures, and difficulty interpreting others' nonverbal communication cues [7].

Cognitive Development

Asperger's Disorder is not associated with a significant delay in cognitive or adaptive skills [1]. Children with Asperger's Disorder generally have average or above average intelligence and their vocabularies and word identification skills typically exceed their age and grade level. Despite intact cognitive skills, many individuals with Asperger's Disorder have learning difficulties [4]. Some of the difficulties reported include a lack of awareness of time, deficits in expressive and receptive language skills, and difficulty understanding irony and humor in speech. Individuals with Asperger's Disorder tend to be visual learners rather than auditory learners. They have difficulty with abstract thinking and associated problems with comprehension in reading. In addition, students with Asperger's Disorder are not aware of their effect on others during cooperative learning times [4]. Wagner [7] also reported poor problem-solving and organizational skills, concrete literal thinking, difficulty differentiating relevant and irrelevant information, obsessive and narrowly defined interests, and difficulty generalizing and applying learned knowledge and skills across different situations, settings, and people.

Motor Difficulties and Sensory Issues

Although not a diagnostic criteria, sensory issues and motor difficulties are frequently found among some individuals with Asperger's Disorder. Issues include hypersensitivity or hyposensitivity to certain noises, smells, or textures; high threshold for physical pain; difficulties with visual tracking; difficulty with fine motor skills, such as handwriting; and awkward gait and other gross motor movements [3–5].

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Asperger's Syndrome

►Asperger's Disorder

Asphyxia

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Synonyms

Strangulation; Suffocation

Definition

In Greek, asphyxia means without ("a") pulse/heartbeat ("sphygmos"). Asphyxia is a condition of impaired blood gas exchange [2]. When severe, asphyxia can progress to hypoxia (decreased oxygen supply), hypoxemia (deficiency in oxygen concentration in the arterial blood), and hypercapnia (excess carbon dioxide in blood).

Description

Asphyxia can occur from suffocation, strangulation, or ingestion/inhalation of chemicals (e.g., carbon monoxide) [10]. Various types of asphyxia have been delineated: birth asphyxia/perinatal asphyxia, mechanical asphyxia, traumatic asphyxia, compression asphyxia, positional asphyxia, and restraint asphyxia [10]. Traumatic or compression asphyxia is a form of mechanical asphyxia. Birth asphyxia/perinatal asphyxia has garnered the most attention in the pediatric literature, due to its prevalence and the long-lasting sequelae that persist through the school years.

Birth Asphyxia/Perinatal Asphyxia (PA)

Birth asphyxia is a medical condition in which a neonate takes in an inadequate amount of oxygen before, during, or just after birth [2]. Also referred to as perinatal asphyxia (PA), birth asphyxia results from oxygen deprivation (hypoxia), hypoxemia, hypercapnia, and excess acid in the blood (acidosis). Prevalence rates indicate PA occurs in approximately 1–6 per 1,000 live full-term births [7, 14, 17]. Various clinical features of newborns with PA have been observed: fits, atypical movements, and muscle tone alterations, which sometimes result in consistently low Apgar scores in the minutes following birth and oftentimes progress to a diagnosis of neonatal encephalopathy [6]. Specific indicators associated with PA include: labor complications (e.g., ruptured uterus), fetal distress (decelerations in heart rate), signs of disrupted energy metabolism (e.g., acidosis or atypical lactate and phosphorous metabolite levels), and abnormal brain activity monitored by electroencephalogram (EEG) [6]. Additional markers have been outlined: (a) pre-delivery: abnormal fetal heart rate and low pH level in blood sample from the fetal scalp; and (b) at birth: bradycardia/bradyarrhythmia, poor skin color, weak muscle tone and reflexes, feeble cry, gasping or labored breathing, and meconium-stained amniotic fluid. According to guidelines established by the American Academy of Pediatrics (AAP) and the American College of Obstetricians, a diagnosis of PA is made when the following criteria are met: (a) severe acid levels (pH less than 7) in the umbilical cord's arterial blood; (b) continual Apgar score of 0–3 for longer than 5 min; (c) neurological complications as evidenced by seizures, coma, poor muscle tone, and (d) problems with the circulatory, blood, digestive, respiratory, or kidney systems [4]. Specific features pre-, during, and post-delivery have been associated with severe PA: umbilical cord compression, placenta rupture, abnormal uterine contractions, or failure to commence breathing.

PA and the associated lowered oxygen, ischemia, and/or acidosis directly impact body organs. The central nervous system, cardiovascular, gastrointestinal, pulmonary, and renal structures are particularly susceptible. In fact, there appears to be a critical threshold for asphyxia, beyond which brain damage is inevitable. If specific neurological signs associated with hypoxia appear within 7 days following birth, the condition of neonatal

encephalopathy is diagnosed. Neonatal encephalopathy is one of the most severe sequelae of PA.

Results of PA tend to take the form of global brain injury; however, some brain regions appear more susceptible than others [6]. The duration and severity of the asphyxia in addition to the brain's maturity at time of PA determine the pattern of brain damage. Research based on neuroimaging findings reveal that post-PA damage has been found in the basal ganglia, thalamus, and brain stem [6, 12]. Some studies have found specific parasagittal injury infiltrating the grey and white matter. In addition to potentially widespread white matter damage, the hippocampus has garnered attention as a focal lesion following PA.

Due to the complexity of asphyxia, investigators acknowledge the unpredictability and unavoidable nature of PA and urge clinicians to treat promptly in an effort to minimize the deleterious effects of decreased oxygen supply [4]. To treat PA prior to delivery, the mother can be given extra amounts of oxygen. In some cases, emergency delivery via cesarean section and provision of supplemental oxygen for the neonate immediately following delivery is essential. The assistance of a mechanical breathing machine and accompanying medication may also prove beneficial.

Unfortunately, statistics indicate that approximately 15–20% of infants with PA die in the neonatal period [15, 18]. Surviving infants generally fall into two distinct categories: those experiencing significant impairment and those who are essentially impairment-free. Study results indicate that about 25% of infants show major neurological impairments, whereas the remaining 75% are fortunate and experience no significantly harmful sequelae [18].

Mechanical Asphyxia

Mechanical asphyxia occurs when external pressure is applied to the chest, preventing respiration [3, 16, 19]. Traumatic asphyxia, compression asphyxia, and restraint asphyxia are forms of mechanical asphyxia and are reportedly unusual and uncommon in children [8]. When cases of traumatic asphyxia are diagnosed, they have been closely linked with smothering, overlaying (restraining), adult-child bed sharing, and motor vehicle crashes [8, 13]. Other cases of traumatic asphyxia have emerged from compression by heavy machines, furniture, and in rare occurrences, asthma, epilepsy, and deep sea diving [11]. The weight and duration of compression directly affect outcome [13]. Mechanical asphyxia that does not result in death usually leads to congestion of the head and neck and petechiae, or pinpoint hemorrhages, which surface around the eye and on the face. Investigators have postulated that petechia form because of a sudden increase in pressure in small capillaries and venules. The same mechanism is thought to be responsible for visual disturbances which oftentimes follow [1]. Although cases of accidental death have been recorded, the mortality rate from traumatic asphyxia is generally low in children [13]. When other severe injuries including thoracic and head injuries are present, the prognosis is generally guarded. However, in general the prognosis for traumatic asphyxia is good and no long-term disability, with the exception of visual difficulties, persists [1, 13]. Ophthalmological examination is key in children who have experienced traumatic asphyxia.

Positional Asphyxia

Positional Asphyxia is a condition arising due to the adoption of a particular body position that mechanically interferes with pulmonary ventilation. It is usually an accidental occurrence, and when death results, the body is usually found in a position that interferes with normal breathing [9]. Positional asphyxia occurs when the body's position restricts adequate breathing [10]. Most types of mechanical, compression, restraint, or traumatic asphyxia are related to positional asphyxia which obstructs the airway and leads to inadequate oxygen intake.

Relevance to Childhood Development

Literature has focused primarily on perinatal asphyxia and the long-term sequelae. With regard to mechanical asphyxia (traumatic, compression, and restraint asphyxia) and positional asphyxia, the experienced hypoxia and petechia frequently contribute to long-standing vision impairments and potential neuropsychological deficits similar to those resulting from PA. Hence, this section focuses on the relevance of PA to childhood development.

Perinatal asphyxia (PA) has been linked to both immediate (as noted above in terms of clinical features) and delayed onset symptoms. Correlations between PA and subsequent cognitive, motor, and behavioral impairments have been delineated. Neuropsychological deficits following PA have been found in attention, perceptual-motor skills, executive functioning, and memory [12]. Nevertheless, debate ensues regarding the nature and range of outcome severity. General consensus in the field states that poorer outcomes emerge for infants who experienced more severe asphyxia than those with milder forms. Severe PA has been found to cause poor cognitive and motor development and to precipitate neurological impairment such as ▶cerebral palsy, epilepsy or intellectual delay. Of note, many early studies document a direct connection between PA and cerebral palsy (CP); however, more recent

rigorous research has found that fewer than 10% of CP cases are due to PA. Hence, clinicians are cautioned about making direct correlations between CP and PA.

Long-term longitudinal evaluation of children with PA has shown that a significant percentage of survivors without specifically diagnosed neurologic sequelae are likely to exhibit school-related dysfunction [15]. This is true mostly because, at an early age, minor cognitive difficulties may remain undetected; however, when school subject matter increases in difficulty and greater cognitive demands are imposed on the child, he/she struggles and cognitive deficits emerge. Overall, research indicates that children with mild encephalopathy go unnoticed at school; whereas, greater than 40% of children without identified neurologic impairment but with a previous diagnosis of moderate to severe neonatal encephalopathy are identified as at-risk or already experiencing school difficulties.

Two different outcomes of PA have garnered substantial attention: memory impairment and schizophrenia [5, 6, 12]. Associated with bilateral hippocampal abnormalities, memory impairments can arise and present significant difficulty for the pre-school and school-age child. A study of adolescents indicated that those who had experienced moderate to severe PA exhibited significantly worse performance on tests of delayed recall for both verbal and visual information, perceptual-motor speed, and attention and executive functioning [5, 6, 12]. The associated hippocampal injury sheds further light on the memory deficits emerging in children with a history of moderate to severe PA. A mild form of developmental amnesia also has been found to occur as a consequence emerging a long time after the initial moderate to severe PA.

With regard to schizophrenia, some research has linked early onset schizophrenia (between 7 and 13 years of age) with obstetric complications including maternal infection, pre-eclampsia, and hypoxia at birth [5, 6, 12]. It appears that the hippocampus may actually act as a mediator in schizophrenia in that PA can lead to hippocampal abnormalities, and patients with schizophrenia show reduced hippocampal volume. Another hypothesis has surfaced noting the interaction of PA with schizophrenia susceptibility genes in the emergence of schizophrenia. Of note, although there appears to be a significant association between PA and an increased risk for schizophrenia, more than 90% of individuals who experienced PA do not develop schizophrenia.

Memory impairment and schizophrenia are being studied more closely as potentially common outcomes following PA. It is important to note that such sequelae will generally not emerge until later in childhood, usually during the school years. Further study is required to identify factors contributing to the emergence of such impairments and to elucidate the potential precursors of such problems optimally to prevent further exacerbation, specifically in terms of school-related problems.

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Assault

►Aggression
►Physical Aggression

Assessment

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Synonyms

Evaluation; Testing

Definition

A psychological assessment is a formal clinical evaluation of an individual that typically involves the administration of standardized psychological tests.

Description

Assessment refers to the process and outcome of the process that yields information about an individual, based on the individual's history, current performance and expected future performance [2]. While an assessment may involve the use of specific tests, assessment is more than psychological testing. The use of specific standardized tests is just one component of a psychological assessment, which is a multi method approach to synthesizing information about or evaluating a child. A psychological assessment is a formal process of clinically evaluating a child.

Psychological assessments are typically conducted when there is a question about a child's behavior or performance, and information is needed in order to determine the nature of the problem, diagnostic information and/or treatment and program recommendations [2]. So, an assessment may be carried out to screen a group of children for a possible characteristic such as academic giftedness, to diagnose a particular child with a possible disorder such as conduct disorder or to evaluate the progress of treatment.

A typical assessment includes four parts [1]. First, the problem must be identified. Defining the problem is part of the referral process and usually takes place in the context of an interview. Next information must be gathered about the problem. Psychological tests are most commonly administered in this phase. Third, the information must be synthesized. This means that all the gathered information is interpreted in a meaningful way that takes into account the individual and the context surrounding the individual. Finally, recommendations for dealing with the problem such as treatment or coping strategies must be proposed.

A typical school based referral for a psychological assessment includes the administration of a number of standardized tests. Standardized tests allow the child to be compared to broad based normative populations to evaluate the child in comparison to a group of peers [3]. These tests likely include measures of intellectual ability and academic achievement. Further testing will depend on the nature of the suspected difficulty so a child referred for a possible learning disability will also receive tests of memory, attention, phonological processing and reading, etc., while a child referred for a possible developmental delay will also receive tests of adaptive behavior. In both cases there may also be additional testing of social skills, personality and behavior. The results of the testing are evaluated by the psychologist, along with previous test results, past history, school report cards, parent and teacher checklists and/or interviews and direct observation yielding the final assessment which may come in the form of a diagnosis of a disorder and suggestions for treatment and program planning.

A school based assessment may be known as a psychoeducational assessment [1, 2]. A neuropsychological assessment typically involves the administration of tests designed to elucidate brain functioning [1, 2]. A forensic assessment involves legal issues [1, 2].

Assessments may be carried out by various qualified personnel, for example, a psychologist may assess a child for a learning disability or a physician may assess a child for medication for an attention disorder. Assessments may take place in diverse settings such as clinics, hospitals, psychologist offices, or schools and for purposes other than psychological ones.

In educational settings, assessments are sometimes categorized as summative or formative [1]. Summative assessments are conducted at the conclusion of a course and may be used to evaluate the instructor or the student's learning. Formative assessment takes place during the course and can be used by the instructor to improve teaching and to determine next steps to be taught.

School based, educational assessments may also be categorized as authentic, performance or dynamic [1].

Authentic assessment typically occurs in a real-life setting. So, for example, a child may be asked to read from a book assigned in class. Performance assessment is used to measure how well a student performs in class; it uses performance rather than tests, so an essay or presentation might be evaluated. This is the typical assessment performed by a school teacher. One kind of performance assessment is known as portfolio assessment. A "portfolio" of assignments in reading or writing or mathematics is used to evaluate student progress over time. Dynamic assessment attempts to measure a student's learning potential. Pre and post measures are taken of performance on a task to evaluate how readily the student acquired the taught skill.

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Assessment for Learning

►Formative Assessment

Assessment Observations

►Behavioral Observation

Assessment of Major Maternal and Fetal Risk Factors

►Prenatal Screening

Assimilation

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Synonyms

Acculturation

Jean Piaget discusses assimilation as the method by which information is included in existing schemas [1]. If you learned how to drive a car in the United States, you have a schema for driving on the right side of the street. If you live in the U.S., most of your experiences driving will fit into this schema (unless you encounter construction), thus you will assimilate the information. However, if you drive in Australia or Great Britain, you will have to adjust your schema to accommodate new information; namely driving on the opposite side of the street. For some people, accommodating this information takes a great deal of effort. Piaget explains that assimilating information takes much less mental energy, which explains why young children, and a lot of adults, prefer routine. Young children have not developed the repertoire of schemas that most adults have. Thus, they prefer to encounter things in their environment that fit into their existing schemas. If you have been around young children, you will notice that they prefer to have the same stories read to them, again and again. They do better when there is routine in their environment and they know what to expect.

Another example of assimilation involves the terrorist attacks of September 11. The initial reaction of many people watching the coverage of the September 11 attacks on the World Trade Center believed they were watching a movie. The schema that people had for that type of visual (i.e., planes crashing into a building) was "movie" because that is where they had seen that type of event before. Some individuals had to watch the news coverage numerous times before their brains were able to change their schemas to accommodate the new information of a terrorist attack. Now, in the United States, when there is an incident, such as a plane hitting a building, many people assimilate the information; initially categorizing the event as an act of terrorism (since that is the schema they now have).

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Assisted Suicide

►Active Euthanasia

Associated Factors

►Risk Factors

Association

►Comorbidity

Association for Retarded Citizens (ARC)

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Description

The Arc is the world's largest community based organization of and for people with intellectual and developmental disabilities. It provides an array of services and support for families and individuals and includes over 140,000 members affiliated through more than 850 state and local chapters across the nation. The Arc is devoted to promoting and improving supports and services for all people with intellectual and developmental disabilities.

The Arc's vision is that every individual and family affected by intellectual disability in the United States has access to the information, advocacy, and skills they need to participate as active citizens of our democracy and active members of their community. We work to ensure that people with intellectual and developmental disabilities and their families have the supports they need to live an ordinary, decent American life:

- People with intellectual and developmental disabilities and their families are valued, respected and included in all communities.
- People with intellectual and developmental disabilities direct their own lives. People choose their services and supports from many available sources.
- People are empowered through nonprofit advocacy. State and federal governments administer programs and set budgets that meet everyone's needs.

Mission Statement

The Arc of the United States advocates for the rights and full participation of all children and adults with intellectual and developmental disabilities. Together with our network of members and affiliated chapters, we improve systems of supports and services; connect families; inspire communities and influence public policy.

References

1. http://www.thearc.org/

Assumption of Normality

►Homoscedasticity

Asthma

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Synonyms

Bronchial asthma

Definition

Asthma is a chronic inflammatory disorder of the airways, in which individuals experience recurrent episodes of wheezing, breathlessness, chest tightness, and cough.

Description

Asthma is a long term disease that cannot be cured. Symptoms of asthma include coughing, wheezing, chest tightness, and shortness of breath. Coughing is often worse at night or early in the morning, making it harder to sleep. Wheezing is a whistling or squeaky sound that occurs while breathing. Chest tightness has been reported to feel like something is squeezing or sitting on the chest. Lastly, it is often conveyed that asthma makes individuals feel out of breath or feel like it is harder to catch their breath. Not all people with asthma will have all of these symptoms. The physiological reasons for asthma symptoms include the inflammation of airways. Airways are tubes that carry air in and out of lungs. During an inflammation, the tubes swell, the muscles constrict, the lungs become very sensitive, and mucus production increases. The combination of these reactions can make breathing difficult. Sometimes asthma is classified into categories based on severity of symptoms, usually referred to mild, moderate, or severe. Even though the exact causes of asthma are not known, researchers have linked certain factors that can contribute to its development. These factors include an inherited tendency to develop allergies, parents who have asthma, certain respiratory infections during childhood, and contact with some airborne allergens or exposure to some

viral infections in infancy and early childhood when the immune system is developing [3].

Asthma symptoms can be controlled with appropriate treatment. Action plans are strategic lists that include critical guidelines for asthma management and have been associated with improved asthma outcomes [2] and viewed positively by patients with asthma [3]. Doctors recommend controlling the disease by using action plans to reduce troublesome symptoms. Action plans suggest that individuals with asthma take their medicine; either long-term control medication or quick-relief medication. The first type of medication helps to reduced airway inflammation and prevents asthma symptoms; the latter relieves symptoms that may flare up. Due to the different outcomes of the medications, they should not be used in place of each other. Action plans also suggest that individuals avoid environmental contexts that may worsen their asthma. Taxing factors that affect asthma can vary by individual. The most common factors include exposure to pollen or air pollution, animal fur, and health conditions like runny nose or sinus infections. Lastly, the treatment for asthma varies by population. For instance, it is challenging to diagnose children under the age of 5 with asthma, therefore the benefits for long-term control medications are not known for this population. Also, pregnant women with asthma may be at risk for having low birth weight babies [3]. Overall, action plans are used in many nations to control asthma episodes and attacks. To date, action plans for the self management of asthma are the standard for treatment [1].

Relevance to Childhood Development

As mentioned previously, contact with airborne allergens or exposure to viral infections early in infancy or childhood when the immune system is developing can result in asthma. Referred to as the "hygiene hypothesis" some have proposed that many young children no longer experience the same types of environmental exposures and infections as children did in the past. Consequently, the immune system developed by children today is different and may be more prone to develop asthma.

Most children who have asthma develop their first symptoms before 5 years of age. However, asthma in young children (aged 0–5 years) can be hard to diagnose. Sometimes it can be difficult to tell whether a child has asthma or another childhood condition because the symptoms of both conditions can be similar.

Also, many young children who have wheezing episodes when they get colds or respiratory infections do not go on to have asthma. These symptoms may be due to the fact that infants have smaller airways that can narrow even further when they get a cold or respiratory infection. The airways grow as a child grows older, so wheezing no longer occurs when the child gets a cold [3].

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At Risk

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Synonyms

Exposed; In danger: in jeopardy, threatened, susceptible

Definition

The term at risk is used by educators, social service personnel, and others when referring to students who have a high probability of experiencing failure in school.

Description

Has been used to address potential failure, by definition may include students who perform poorly in school subjects. In general terms, there is a suggested notion that the child or adolescent is at risk of failing and will eventually drop out of school. It is also used to point out a set of factors in a family environment and in the individual's attitudes and activities that are associated with (school or other risk environment) failure.

Risk Factors

Research shows that students' economic status is associated with the likelihood of success in school. Whether

measured directly by parents' income or by characteristics such as parents' occupations or the number of wage earners, students from low-income families are less likely to obtain high grades and test scores, less likely to graduate with their entering class, and more likely to experience behavior problems than are students from higher-income families [1].

Behavioral risk factors are behaviors and attitudes closely related to learning. Some examples of behavioral risk are poor attendance, lack of attentiveness in class, failure to complete coursework, poor relationships with teachers, feelings of alienation at school, and developing the outlook that schooling is not important to future successes.

Academic risk factors are deficient outcomes during a school career that can interfere with the chances of success in later grades of schooling. These might include accruing a history of poor grades, low test scores, standardized test scores, and/or failure of one or more grade levels.

Multiple or cumulative risk factors can greatly increase the likelihood for a child to drop out of school.

Effective Strategies for At Risk Students

Students who are at risk of school failure tend to see their teachers as having low interest in them as people. It is imperative that a student with other attendant risk factors for failure has at least one teacher or counselor who they feel cares about them as a person. Although some critics of the at risk label cite isolation as a problem, a successful program has been shown to utilize low student-teacher ratios and separation of the at risk students from the rest of the student body. Programs that focus on basic academic and survival skills, such as attending to tasks, following directions, raising one's hand to speak, and writing legibly are also known to be successful. At risk students need to be maximally engaged in an educational program that is carefully structured to meet their individual needs, and they must be taught by people who firmly believe that these children can and will succeed [2, 3].

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At Risk Infants

▶Very Low Birth Weight

Ataxic Aphasia

▶Broca's Aphasia

ATC Therapeutic Classification Code N05BA02

▶Chlordiazepoxide

Atomoxetine

▶Strattera (Atomoxetine)

Attachment

▶Bonding
▶Emotional Connection, Parent-Child
▶Relationships

Attachment Behaviors

▶Ainsworth's Procedure

Attachment Classifications

▶Ambivalent Attachment
▶Ainsworth's Procedure

Attachment Disorder

▶Disorganized/Disoriented Attachment

Attachment Measures

►Adult Attachment Interview (AAI)

Attachment Patterns

►Adult Attachment Interview (AAI)
►Ainsworth's Procedure
►Ambivalent Attachment

Attachment Representations

►Adult Attachment Interview (AAI)

Attachment Styles

►Adult Attachment Interview (AAI)
►Ambivalent Attachment

Attachment Theory

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Synonyms

Ainsworth's procedure; Infant–mother attachment studies, of ainsworth

Definition

Attachment is defined as the strong affectional tie that connects people; for infants, the first attachment is usually to the mother, and the mother-child tie often remains one of the strongest attachments.

Description

The most familiar form of attachment is between an infant and his mother. John Bowlby and Mary Ainsworth developed theoretical and empirical approaches to advance the understanding of attachment and the myriad lifelong influences of this earliest bond. In infancy, attachment is manifested by the tendency for a toddler to seek *proximity* to their attachment figure or caregiver when they experience distress. When the infant feels safe, he moves away from caregivers to explore the environment, with the confidence that he may return to the *secure base* of his mother's comfort and protection if he becomes frightened, tired or is in distress.

A*ttachment* denotes the emotional bond to a caregiver. Usually an infant's mother is the primary attachment figure, but anyone who has been consistently responsive to the infant may fulfill this need. Over time, multiple attachments may develop. However, the infant usually shows a hierarchy of preferences, with one highly preferred attachment figure. If the preferred attachment figure is not available, the infant will rely on the next person in the hierarchy as a secure base, and may even turn to a kind stranger in moments of distress.

Attachment behaviors refer to the gestures that the infant engages in to gain contact with the mother or other preferred attachment figure. In keeping with his ethological influences, Bowlby posited that humans, like animals, possess species-specific behaviors that help to keep a parent nearby. This proximity satisfies the human species' innate predilection towards forming interpersonal attachments, and offers protection from cold, hunger, and other distressing experiences. Thus, from birth, infants possess a repertoire of behaviors such as crying, orienting, crawling, cuddling, grasping and clinging that draw the attention of the mother and promote proximity. As the infant matures, the repertoire of attachment behaviors increases, and the nature of the attachment bond becomes more nuanced. (See *Bowlby's Stages of Attachment* herein.)

An infant engages in attachment behaviors when a stimulus or condition *activates* the behavior system. Activators may stem from external or internal stimuli, or a combination of both conditions. For example, when a stranger enters the room (an external activator), an infant may look over to see how his mother appears (the attachment behavior.) If his mother is present and appears calm, the child may resume his play (and thus terminate his attachment behavior). If the mother appears apprehensive, the infant responds to that cue with fussing (another attachment behavior) to draw the mother's attention and gain her protection. Alternatively, a toddler may experience stomach cramps (an internal activator) and cry (the attachment behavior). He may not terminate his attachment behavior until his mother picks him up and offers comfort. In general, the degree of contact that the infant needs to terminate the attachment behavior depends on the intensity of the stimulus that activates

the attachment behaviors, the quality of the attachment bond, and the developmental level of the child.

As the infant matures, the threshold of discomfort required to activate the attachment system is higher. With each exposure to distress and the mother's accompanying response to the infant's bid for contact, the infant internalizes a feeling that he associates with proximity. The next time that a similar distressing situation arises, the infant evokes his internal sense of the comfort and safety that he associates with proximity. If the distress is tolerable, the self-generated feelings will suffice and the attachment behavior system will terminate.

With accrued experiences, an infant develops an *internal working model* of his primary attachment relationship. Thru sucking, clinging, following, smiling, crying, and when older, by going to the caregiver when in physical or emotional distress, the child explores his relationships and builds a model or mental image of how they work. This model is a mental representation of the infant's self, his attachment figure, and the nature of their relationship, and is comprised of feelings, cognitions, expectations, behavioral strategies and constructs for processing and organizing memories. This internal working model reflects the child's relationship history, codifies behaviors that belong in intimate relationships and defines how the child will feel when in similar encounters with other people.

Ainsworth observed dozens of mother-infant dyads during her work in Uganda and later in the United States. Through these observations, she became aware of individual differences in infants' responses to distress, especially the pain engendered by separation from their mothers. She devised the *Strange Situation* (see entry herein) to study the ways in which infants use their mothers to cope with the distress. Ainsworth identified a secure baby as one who protested when his mother left the room, greeted her pleasantly upon her return, and was able to resume play. When situated in the room with the mother close by, the infant would use her as a secure base from which he would explore the toys and other objects in the room. In contrast, an infant with an avoidant attachment rarely cried when the mother departed from the laboratory room, and remained aloof on her return. He generally did not show his need for connection, although physiological studies show that he has a physically measurable stress reaction. Finally, an ambivalent (or resistant) infant is anxious before the mother leaves the room, and may become highly upset when she departs. When the mother returns, the infant engages with her in an ambivalent fashion: he seeks contact while resisting her by squirming away or kicking his mother. He has difficulty using his mother to obtain comfort and return to exploration. Later research revealed the disorganized attachment pattern. An infant who reflects this attachment style displays inconsistent or contradictory attachment strategies. For instance, the infant may happily approach the mother but turn away or shriek when she tries to pick him up. At other times the infant may evince extreme distress yet remain frozen and not seek contact with his mother.

Relevance to Childhood Development

Attachment theory offers a way to understand the nature of a developing child's self-concept and relationship patterns. The infant's experiences in his first attachment relationship with his mother sets him on a particular developmental trajectory. From that relationship, he develops an internal working model of the nature of attachments. The actual path that the developing child pursues in his relationships may be altered by subsequent experience. However, the course is generally established based upon the quality and dynamics of his bids for proximity and his mother's responsiveness and accessibility.

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Attention

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Synonyms

Concentration

Definition

Attention is the cognitive process of selectively focusing on one thing, sensation or idea while ignoring others.

Description

Attention has been defined as a state of awareness wherein the senses are selectively focused on components of the environment [14]. Attention is a process that varies on

a number of dimensions and is therefore considered multidimensional. Attention can be under conscious awareness or it can be unconscious, although traditionally when someone is admonished to pay attention what really is being said is focus consciously. On the other hand, a person who is not paying attention to what is being said but who is still able to repeat the message conveyed is said to be engaging in unconscious attention. For example, in an experiment by Gray and Wedderburn [7] named "Dear Aunt Jane" people were given a set of headphones in which different messages were played in each ear, 9-Aunt-6 in the right ear and Dear-7-Jane in the left ear and were told to listen to the message in the left ear only. The researchers found that although the participants were not listening to the message in the right ear they claimed to have heard "Dear Aunt Jane," showing that although they were not consciously attending to one message they were still able to process the information.

Further, attention can be directed specifically to one task or divided among multiple tasks. Attention is also dependent on the type of task. It is easier to remain focused on more stimulating tasks compared to tasks that are not as interesting. Attention can be classified into different types, including selective attention, sustained attention and executive attention. Although attention can be divided into types of attention, they follow similar patterns of development with shifts around age 6 and 11. Attention develops over the first years of life, reaching its peak around the age of sixteen. Improvements in attention are related to maturation of the frontal lobes of the brain. Attention requires arousal which regulates one's state of alertness, vigilance or the ability to select the appropriate stimuli from a set, persistence or the ability to sustain mental effort, and monitoring which is the ability to oversee or supervise one's efforts.

Selective attention is described as the ability to concentrate on certain environmental stimuli while ignoring others. Selective attention is what permits one to carry on a conversation with someone in a noisy environment, often known as the cocktail party effect. Older children perform much better on tasks of selective attention than younger children do; younger children are as likely to pay as much attention to distractor items as to relevant information.

Different models have been proposed to explain selective attention. Broadbent and Triesman both developed models to explain what occurs during selective attention and their models differ on when the information is selected. According to Broadbent's filter model [5], information is selected before it is analyzed for content. This view is also called a pre-categorical view. This model proposed that both the attended stimulus and the ignored stimulus are taken in by the senses, and then proceed through a filter. The filter only allows the attended message to pass through unchanged and the ignored stimulus is lost. The filter's selection is based on physical characteristics. Ultimately, the attended stimulus is processed further to determine higher-level characteristics, such as meaning, by the detector. The reason this model is called a pre-categorical model is because it filters out information before it is analyzed for meaning.

Treisman's [12, 13] Attenuator Model is an example of the post-categorical view. Unlike the model proposed by Broadbent, in Treisman's model the ignored stimulus is not filtered out but it is simply attenuated. Therefore, both stimuli pass through an attenuator after being taken in by the senses, which allows the attended stimulus through unchanged and attenuates the ignored stimulus. After both stimuli go through the attenuator, which happens in parallel, they are analyzed in terms of physical characteristics, language, and meaning. This model is considered a post-categorical model because the selection of stimuli for the final processing does not occur until after the information has been analyzed for meaning [6, 10].

For many years researchers debated over which of these models best explained selective attention. More recently, a third theory has been proposed. The Load Theory provides two mechanisms for selective attention [8]. The first mechanism is perceptual selection which allows for excluding irrelevant stimuli in situations with a high perceptual load. This mechanism is considered to be passive because stimuli may be ignored because they are not perceived. The second mechanism is an active mechanism that involves rejecting irrelevant information that is perceived. This second mechanism is influenced by higher order cognitive functions including working memory. This model shows that increasing perceptual load decreases distractions, but increasing cognitive load increases the effect of distractors. This theory proposes that both of these mechanisms are needed in selective attention.

Sustained attention is the ability to maintain attention over a period of time [9]. Sustained attention develops throughout childhood and reaches its peak by the age of sixteen although this ability is usually well developed by middle childhood [4]. Throughout development the factors that influence sustained attention differ. In children, sustained attention is best when many stimuli are presented during a set time frame, but when the number of target stimuli, or stimuli the child must remember is low. On the other hand, adults are best able to attend to information when fewer stimuli are presented but more of

the target stimuli are presented. This can be explained in terms of level of arousal. When fewer stimuli are presented this may be underarousing for children and the demand placed on their ability to sustain attention is higher making it more difficult to maintain attention on the task [11].

►Attention deficit/hyperactivity disorder (ADHD) is characterized by patterns of inattention and hyperactivity and difficulties with inhibition [2]. This disorder can be very problematic in academic settings as well as other settings. It affects not only academic success but also social functioning. This disorder presents with patterns of deficits in certain types of attention, but not all types. Research has shown that children with ADHD display deficits in sustained attention compared to normal children, but they do not present with deficits in selective attention. Barkley [3] developed a unified theory to explain ADHD in which he states that the primary deficits in the disorder are associated with behavioral inhibition which in turn affects the individual's ability to maintain attention on a specific task.

Executive attention more commonly known as executive functions refers to attention to one's own behavior so as to regulate it [1]. Executive attention is related to choosing what features of the environment to pay attention to and how to respond based on incoming input but also cognitive functioning based on past experiences and future goals. Executive attention involves the ability to maintain or recover information that is not in conscious awareness. Executive attention is often used synonymously with working memory. This ability begins to develop around the age of three, but children do not become proficient with this ability until the ages of 7–11 years. Executive attention is also associated with other executive functions including planning and self-regulation.

Relevance to Childhood Development

In summary, the various components of attention develop over the childhood years leading to improvements in the way children attend. Improvements in selective, sustained and executive attention are related to maturation of the frontal lobes of the brain. The ability to attend is critical to many components of social and academic success.

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Attention Control

►Attentional Strategies

Attention Deficit Disorder

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Synonyms

Attention deficit hyperactivity disorder, ADHD; Hyperkinetic syndrome; Minimal brain dysfunction

Definition

Attention Deficit Disorder (ADD) is an earlier term for the disorder now known as Attention Deficit Hyperactivity Disorder (ADHD; see entry for Attention Deficit Hyperactivity Disorder for a more thorough treatment of this topic).

Description

The term ADD was introduced into the diagnostic classification system with the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* [1], although the disorder was previously recognized as Minimal Brain Dysfunction, Hyperkinetic Syndrome, Hyperkinetic Reaction of Childhood, and various other names. ADD was characterized by developmentally inappropriate inattention and impulsive behaviors, and the disorder was classified into three subtypes: ADD with Hyperactivity (severe levels of inattention, impulsivity, and hyperactivity), ADD without Hyperactivity (severe levels of inattention and impulsivity without severe hyperactivity), and ADD Residual Type (hyperactivity disappeared in adolescence/adulthood, but difficulties with inattention and impulsivity continued). Thus, the DSM-III attempted to differentiate children with attention problems only from children with attention problems in addition to hyperactivity [3].

In the DSM-III, prevalence of ADD was estimated at 3% during childhood, with the disorder much more likely to occur in boys than in girls. The core features of ADD are similar to those of ADHD, although the system of classifying symptoms into subtypes has changed in order to reflect more recent empirical research findings. Whereas ADD was classified into ADD with Hyperactivity, ADD without Hyperactivity, and ADD Residual Type, the current system classifies ADHD into Predominantly Inattentive Type, Predominantly Hyperactive-Impulsive Type, and Combined Type [2]. Given this revised nomenclature, ADD is now seen as an archaic term, and contemporary diagnosis requires use of the current classification system. Research on ADHD over the last decade has greatly enhanced our understanding of the core symptoms, associated features, patterns of comorbidity, etiology, genetic contributions, assessment process, and intervention approaches [4], although debate over the definition and classification of the disorder will likely continue in response to the results of research efforts.

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Attention Deficit Hyperactivity Disorder (ADHD)

►Attention Deficit Disorder

Attention Span

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Synonyms

Sustained attention; Vigilance

Definition

Attention span refers to an individual's ability to attend to a stimulus or object over a period of time. This ability is also known as sustained attention or vigilance.

Description

Attention includes a number of components, one of which, attention span, is the ability to maintain focus and alertness over a period of time. Sustained attention requires persistence and motivation [2]. Thus, individuals with short attention spans may appear to give up or not put sufficient effort into tasks. Attention span increases with age, and is related to, and plays a role in other aspects of functioning including learning, memory, academic performance, and the understanding and processing of large quantities of information [1, 3].

Research has shown that a child's sustained attention develops in a linear fashion until the age of four, but then undergoes a dramatic increase between the ages of 4 and 6 years [1]. Between the ages of 7 and 8 years there is stability in sustained attention relative to slightly older and younger children. This is also the time period when attention problems, such as ►Attention-Deficit/Hyperactivity Disorder (ADHD) are frequently detected, as one of the diagnostic criteria is that some symptoms must be present before the age of seven. By the ages of 9–11 years, children undergo consistent improvements in sustained attention, but their performance is less efficient when compared to adults. Furthermore, children who are nearly 11 years of age demonstrate marked improvement in performance. Therefore, these findings suggest that sustained attention or attention span develops rapidly

between the age of 4 and 6 years. then stabilizes between ages 7 and 8, improving gradually until the age of 16, when adult like levels are achieved, although increases are smaller in magnitude after the age of 11. These periods of improvement have been linked to development of the frontal lobes of the brain.

There are a number of different factors that affect an individual's sustained attention [4]. The conditions that increase sustained attention or attention span in children are opposite to those that increase sustained attention in adults. Research shows that sustained attention in children decreases when the event rate is low. Event rate is measured by the number of stimulus presentations per minute. Adults, on the other hand, perform better when the event rate is low. This means that a child is likely better able to sustain attention when stimuli are presented frequently or quickly, while adult performance improves when fewer stimuli are presented in the same time interval. One hypothesis developed to help explain these results is that, for children, the presentation of a single stimulus (low event rate) may be under arousing and therefore places a higher demand on the child's sustained attention, which taxes attention span, compared to high event rate situations in which they perform better. Another factor that impacts attention span is the probability of an event occurring. The probability of events is the chance of a specific stimulus being presented in a set period of time. Studies have shown that children do better in tasks with low event probability, whereas adults perform better in high event probability situations. Therefore, children display better attention spans when many stimuli are presented per minute and when the target stimulus is presented infrequently. Adults have better sustained attention when fewer stimuli are presented in a minute but more of the target stimuli are presented [4].

Deficits in attention span are commonly associated with Attention-Deficit/Hyperactivity Disorder [5]. This childhood disorder which can be life-long, affects between 4% and 12% of children [6]. ADHD is characterized by patterns of inattention, hyperactivity, and problems with inhibition that cause impairments in several areas of a child's functioning including academic and social problems [7]. The deficits in attention span mean that the child likely encounters difficulty in many school related tasks, such as when faced with reading long, uninteresting material, listening to lengthy, boring lectures, completing homework assignments or projects, and at home, such as when performing household chores; in short anything that requires effort and which may be perceived as boring [1]. Neuropsychological studies which have examined frontal lobe functioning, believed to be associated with sustained attention, have also found that children with ADHD perform more poorly on measures of sustained attention than do children without attention problems. Other studies have found that children with diagnosed attention disorders perform comparably to their peers on measures of other components of attention, such as selective attention, but that their sustained attention is affected [5]. The literature also suggests that children who rate highly on scales used in the diagnosis of ADHD perform similarly to children who have a formal diagnosis. The literature seems to suggest that children with attention problems may be capable of sustaining attention under conditions of high interest but when presented with less engaging material, may shift attention to other events even when these are considered less important. For example, a child may be able to sustain attention when playing a captivating video game but in the classroom, the child will focus on distractions rather than the lesson being taught [1].

Sustained attention is often measured using the Conners' Continuous Performance Test (CPT) a computerized task that requires participants to push the space bar or click the mouse except when an "X" appears on the screen [1, 4, 5]. Research has shown that performance on the CPT is associated with the attention problems seen in children with ADHD.

Relevance to Childhood Development

In conclusion, attention span is the ability to attend to a stimulus over a period of time and is important in accomplishing other tasks. This ability is dependent on different factors including event rate and probability of events but the influence of these factors is dependent on age. Finally, deficits in attention span have been associated with attention disorders.

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Attentional Strategies

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Synonyms
Attention control; Effortful control

Definition
Attentional strategies are plans or actions devised for information processing with the goal of triggering sensory registers, voluntarily or involuntarily, in order to select the desired input and move it on to short-term memory.

Description
Attentional strategies are used to attend selectively to a limited set of cues. In processing information, attentional strategies refer to the actions needed to move new information from short-term memory (working memory) to a longer-term memory, where it is be analyzed and added to new information. Without attentional strategies, the information will be ignored.

Research has shown that a single sensory register can only fully be attended to at any one time. For example as a shift in attention occurs, the management of that information will be to attend to a single stimulus at any moment. It is up to the individuals' central processing unit (CPU) to select the stimulus that will get their attention and potentially lead to new information processing [6].

Relevance to Childhood Development
Children usually begin to learn attention strategies at infancy. An infant responds to certain cues above all others. Auditory and visual stimuli lead to eye and head movements that indicate that sensory registers have been triggered above all other stimuli. It is at this moment that continued stimulation of the registers leads to attention.

As children mature, they refine their attentional strategies to become more selective to relevant information and more adaptable to specific situations [1]. Study of information processing in young children reveals that refinement of attentional strategies evolves through four phases. Production deficiency is the initial phase. During this phase preschoolers make little use of attentional strategies, and their attempts to do so fail. Control deficiency is characterized by inconsistent and ineffective use of strategies by early elementary school children. Consistent use of strategies, but without significant improvement in performance, indicates a child has entered the utilization deficiency phase. Finally, effective strategy use, in which children use attentional strategies consistently and with improved performance, is implemented by mid-elementary years [4].

The more advanced and skilled child uses attentional strategies to attain goal acquisition and to sustain their own thoughts to details to be incorporated into long-term memory and for further analysis.

Elementary Years
Attentional strategies and skills are purposefully used and taught in schools by educators. It is necessary to rehearse and exercise attention skill in order to maintain concentration to information. Strategies are needed since attention capacity is limited. Children learn to attend to specific environmental inputs for further processing in learning. Auditory senses are triggered as a teacher says, "Let's begin," in an authoritative voice indicating a lesson is about to begin. The visual sense cues a child that a classroom has been entered by the characteristics of color and setting. These registers trigger long-term memory indicating that this is a school and prepares a child for the eventual daily lessons.

Elementary educators use proximity, voice modulation, time limits and colorful displays, for example, to gather and sustain the attention of children. Attention will shift to other stimuli in the classroom or from within the child making it necessary to reconnect with the child. Attentional strategies are used to sustain and reconnect to the informational input that is of interest by the teacher and, hopefully, later by the child.

Young students learn by using more visual cues to attend to information. As children get older, they incorporate other sensory registers, and visual cues are not as prominent. In addition, children learn to attend to other cues like printed words. Educators provide cues and educate students on obtaining their own strategies.

Secondary School Years
As a child grows and becomes more self-aware, she/he learns by processing information with more affective dynamics. Informational processing has only recently acknowledged the importance of connecting cognition and affect. In the earlier developmental years, children

are more apt to learn in order to please parents and teachers, but as they get older they want to please themselves [3].

As children enter the secondary school years, new strategies must be incorporated to encourage the input and processing of information. It is vital that teachers equip students with procedures and skills to attend to math and reading independently. Attentional strategies include note-taking skills, class participation, group learning, reading, test-taking skills. As children mature, these usually become automatic and sustained.

Strategies are progressing from teacher-centered strategies to student-centered. To learn, educators must use strategies to stimulate these affective and sensory registers. These attentional strategies take into mind visual, auditory and affective stimuli [3].

Many environmental stimuli act on the body at any one moment in time. In addition, internal factors vie for a child's attention. Most stimuli are ignored, or will be ignored over time. It is necessary to stimulate the sensory registers in order to attend to that which will trigger short-term memory so that the learning process begins. These acts refer to the skills needed by the teacher to trigger attention on the part of the students. Eventually, a child will learn to concentrate on the cues available for learning to begin. Students need skills to plan and manage their sensory registers in order to attend to lessons [2].

Use of Attentional Strategies to Address Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder (ADHD) is a chronic condition affecting 3–5% of all children. It is a developmental disability caused by delayed brain development and characterized by short attention spans and the inability to focus and pay attention. Children with ADHD are easily frustrated and academic failure is high. Attentional strategies are vital in all environments to the success of children diagnosed with ADHD. Distractors abound in the classroom, as in any environment. It is important to provide a setting with a minimal number of competing sensory signals.

A classroom environment that incorporates physical exercise within the everyday routine is effective and beneficial for students with problems attending and concentrating. Exercise increases neurological activities that relate to memory, spatial perception, language and emotion. It also increases motivation and helps students to manage stress [5].

Behavior intervention strategies are frequently used in classrooms to help reduce inappropriate behaviors of students with attention deficits. Staying on task, remaining seated and interacting with others in a socially appropriate manner are reinforced with the use of reward systems. Many students are able to modify their own behaviors when teachers use low-involvement strategies to get their attention. Such strategies include making eye contact, proximity control and placing a hand on students' shoulders to gain their attention. Children with attention deficits have received much attention. Educational strategies are essential to their learning [5].

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Attention-Deficit Disorder

►Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder

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Synonyms

Attention-deficit disorder; Hyperkinetic disorder

Definition

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder which first appears in childhood but is a lifelong, chronic disorder. ADHD is characterized by developmentally inappropriate levels of hyperactivity, impulsivity, and inattention which result in impairment in the academic, social, or occupational

domains. It is one of the most commonly occurring disorders of childhood with estimates suggesting that it affects 3–7% of the school-age population [2].

Description

Brief History of the Disorder

Characteristics of ADHD have been present in medical literature since the beginning of the twentieth century and the disorder itself has carried a variety of diagnostic labels over the course of the past 100 years [3]. In 1902, George Still produced the first official case study of children with attention difficulties, describing 43 children he had seen in his clinical practice. He described these children as having a major deficit in moral control with aggressive and defiant behavior, and lacking inhibitory volition with a need for immediate gratification. However, significant interest in children with attention problems did not come about until the encephalitis epidemic of 1917. At that time, physicians were presented with large numbers of children who survived the epidemic but had lasting behavioral and cognitive problems. These problems are reminiscent of the way we currently conceptualize ADHD in that they experienced difficulties with attention, impulsivity, and hyperactivity. In the 1930s, brain ablation studies became popular as a way of investigating the effects of lesions on aspects of cognitive functioning such as attention and hyperactivity. Researchers discovered that lesions in the frontal lobes of monkeys resulted in problems with restlessness, hyperactivity, and inattention. In the 1940s, Strauss termed the diagnosis of minimal brain dysfunction, resulting largely from what had been learned in brain ablation studies. Also during this time, clinicians and researchers began to look for pharmacological treatments for the collection of hyperactive, impulsive, and inattentive symptoms. It was at this time medicine discovered that stimulants, notably amphetamines, were effective in reducing the symptoms of minimal brain dysfunction. In the 1950s and 1960s, researchers began to postulate that the underlying causes of the symptoms of inattention and hyperactivity were a result of a CNS deficit or brain damage and was renamed "Hyperkinetic Reaction of Childhood Disorder." In the 1960s the idea of organic brain damage as a cause of the disorder was challenged as to its accuracy and validity. In the 1970s and 1980s as old theories were falling out of favor, and with the rise of diagnostic criteria and the DSM-III, the disorder was characterized as one of primarily an attention deficit; thus, it became referred to as attention deficit disorder (ADD). The 1980s and beyond gave rise to an exponential amount of research on the diagnostic criteria for the disorder as well as treatment research. During this time a plethora of new assessment methods and new treatment methods shifted the focus of etiology onto biological factors. With the rise of neuroimaging in the 1990s and a re-evaluation of the DSM, ADD morphed into a neurodevelopmental disorder with objective specific criteria listed in the DSM and was re-termed attention-deficit/hyperactivity disorder.

Diagnosis and Prevalence

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV TR: [2]), a child must have experienced six symptoms of inattention and/or six symptoms of hyperactivity/impulsivity for a period of at least 6 months to be diagnosed with the disorder. These symptoms must have first appeared before the age of 7, the symptoms must be disproportionate to the developmental level of the child, and the symptoms must cause impairment in multiple areas of functioning such as in social, academic, or occupational settings. Children who meet diagnostic criteria for ADHD are further classified into subtypes: Predominantly inattentive type, predominantly hyperactive/impulsive type, and combined type. Diagnosis may be made by a health care professional, such as a pediatrician or primary care physician, or by a mental health specialist such as a psychiatrist or psychologist. However, the majority of children are diagnosed and treated by their pediatrician. Research has suggested that males are more likely to be diagnosed with the disorder than females. Estimates have indicated that males are anywhere from two to ten times more likely to be diagnosed with the disorder than females.

While ADHD is considered a disorder first diagnosed in childhood, evidence exists to demonstrate that the disorder continues into adulthood. Indeed, approximately 75% of children diagnosed with ADHD continue to meet diagnostic criteria for the disorder in adolescence. Of those who maintain a diagnosis in adolescence, 40–50% will continue to experience impairment into adulthood. Presentation of the disorder changes as children age; they often no longer demonstrate gross motor hyperactivity as they did as children. Instead, adolescents and adults with ADHD will show motor signs such as fidgeting, restlessness, and shifting in seat. They continue to experience problems with inattention and impulsivity.

Neuropsychological and Neurological Findings

As ADHD is a neurodevelopmental disorder, it is not surprising a large amount of research has been geared towards understanding the neuropsychological and

neurological aspects of the disorder. Approximately 95% of children with ADHD do not show evidence of documented neurological impairment; however, that does not mean neurological factors are not involved. Results of neuropsychological testing have demonstrated that children and adults with ADHD have trouble with some cognitive abilities such as inhibiting behavioral responses, problems with working memory, planning, organization, perseveration, and other aspects of frontal lobe functioning. Several of these areas in which persons with ADHD show deficits are considered aspects of executive functioning. Indeed, in recent years ADHD has been characterized as a disorder of executive functioning [3]. While executive dysfunction is not yet listed in the DSM as a core symptom, problems with planning, organization and other aspects of executive functioning are frequently a dominant problem for those with ADHD. Additionally, some have argued that underlying difficulties with executive functioning are the main cause for impairment in ADHD, rather than the core symptoms as listed in the DSM-IV.

Results of neuroimaging studies have suggested numerous abnormalities in the brain [10]. Some findings include differences in cerebral blood flow, showing that those with ADHD have decreased blood flow to the prefrontal regions following to the subcortical structures, most notably the caudate nucleus. These studies have also suggested diminished metabolism in the frontal lobes. Other studies have found that children with ADHD have a smaller brain volume overall, a smaller corpus callosum, and smaller caudate nucleus compared to children without ADHD. However, while some structural abnormalities have been found in research, there is little consistency in the research literature about the presence of these structural differences. In adolescence and adulthood, there is some evidence that these differences are no longer apparent.

One of the most common guiding theories in ADHD is that symptoms of inattention, hyperactivity, and impulsivity are the result of a neurotransmitter deficit, specifically deficits in dopamine and norepinephrine. This theory originates from the fact that stimulant medication appears to be an effective treatment for ADHD (see treatment section). The neurotransmitter theory suggests that persons with ADHD either produce too little dopamine or their uptake of the transmitter within the brain is deficient.

Associated Impairments

A core feature of the ADHD presentation is impairment [3]. Children with ADHD show impairment in multiple domains, the most notable of which is the academic environment when the disorder is first diagnosed. Children with ADHD often have difficulty in environments they find to be boring, not stimulating, and which last for extended periods of time. Thus, when children enter the school environment the effects of ADHD symptoms may cause children to fall behind other children in their grade. For instance, children with ADHD have difficulty staying in their seats, may run around the classroom at inappropriate times, and are easily distracted by other children and noises. Hence, if a child with ADHD is supposed to be listening to the teacher explaining the alphabet but is instead continually distracted by a peer who frequently makes loud erasure noises, the child with ADHD may not learn the alphabet as quickly as he or she would if they had not been easily distracted. Such intrusions of inattention, hyperactivity, and impulsivity often result in slowed academic progress or prevention of reaching potential in the academic environment. However, several treatments are available to counteract the impairing effect of ADHD symptoms in the school setting (see treatment section). Such problems in the academic environment are also commonly found in the work environment. As ADHD is a chronic disorder, the symptoms can continue to impair people through college and into the workforce. Similar problems can arise, such as difficulty attending to information, restlessness, and trouble completing tasks due to erroneous distractions.

Another area of impairment experienced by many children, adolescents, and adults with ADHD is social impairment. Research has demonstrated that children with ADHD are often rejected by peers and thus have fewer friends. Reasons for such rejection include a perception that those with ADHD are more aggressive, intrusive, and noisy. Rejection by peers can often leads to problems such as lowered self-esteem and aggressive behavior. Children with ADHD also tend to socialize with deviant peers due to social rejection, which may increase aggressive behaviors. These problems have been documented in adulthood. Adults with ADHD report also having fewer friends and difficulty in mixed gender interactions.

As children age into adolescents and adults, more situations in which they can experience symptom impairments arise. For instance, in adolescence teenagers are given the opportunity to operate motor vehicles and begin driving. Research has demonstrated that adolescents and adults exhibit significantly greater frequency of unsafe driving behaviors such as speeding, driving without a license, or running stop signs [4]. Adolescents and adults with ADHD are more likely to have their license suspended, receive speeding citations, and receive greater

numbers of moving citations overall compared to adolescents and adults without ADHD. It is clear that ADHD is associated with impairment across a variety of domains and has a large impact on the lives of those who live with the disorder.

Comorbidities

The term "comorbidity" or "comorbid condition" refers in the psychological literature to the co-occurrence of disorders together. Children and adults with ADHD often suffer from multiple comorbid conditions [7]. Some of the most common comorbid psychological disorders with ADHD are the disruptive behavior disorders, oppositional defiant disorder (ODD) and conduct disorder (CD). Numbers estimate that upwards of 40% of children diagnosed with ADHD also meet DSM-IV diagnostic criteria for ODD. Similarly, estimates of upwards of 45–50% of children with ADHD also meet diagnostic criteria for conduct disorder. Several other disorders are also commonly diagnosed in children who have ADHD. Specific learning disabilities such as reading disorder, mathematics disorder, etc., are also often present.

Several other groups of disorders are also found to commonly co-occur in children with ADHD. For instance, estimates suggest that up to 30% of children with ADHD may also have an anxiety disorder, and 10–30% may have a depressive disorder. Other mood disorders such as bipolar disorder are also highly comorbid with ADHD, with rates of up to 20%. One last disorder that is often discussed in conjunction with ADHD is Tourette's disorder, a tic disorder. While estimates suggest only 7% of children with ADHD have a tic disorder, upwards of 50% of those children diagnosed with Tourette's disorder have ADHD.

Assessment

Assessment for the presence of ADHD may be done by a pediatrician, psychiatrist, or psychologist. The American Academy of Pediatrics [1] offer specific practice guidelines for the diagnosis of ADHD. The guidelines, designed for pediatricians and primary care physicians, suggest healthcare providers observe the child, conduct an interview with the parent(s) and child to gather necessary background data for diagnosis, and administer specific parent-report rating scales, such as the Conners' Parent Rating Scale. The AAP also recommend that children should be assessed for common comorbidities, but this is not required for diagnosis of ADHD. Of note, use of cognitive tests is not mandatory or recommended for use in diagnosis of ADHD. However, such tests may provide descriptive/qualitative information on the specific cognitive and executive functioning deficits experienced by a particular child.

Knowledge of prevalence rates for comorbid conditions also has implications for assessment. While assessing for comorbid conditions appears simple at first notion, there is significant complexity in the assessment of comorbid conditions. This complexity stems from the concept of symptom mimicry with disorders which are found to co-occur with ADHD [7]. For instance, there is considerable overlap in symptom presentation between ADHD and pediatric bipolar disorder. Bipolar disorder in children often presents with significant motor agitation similar to that of ADHD. Thus, teasing apart the two disorders can be an intricate endeavor. Similarly, decreased attention capacity is a symptom common to many disorders including anxiety disorders, depressive disorders, and posttraumatic stress disorder. Thus, if a child or parent reports significant symptoms of inattention, this should trigger a knowledgeable evaluator to not only assess criteria for ADHD, but also for the various disorder types mentioned in order to ensure that the cause of attention difficulties is not a function of another disorder.

In addition to mimicry with psychological disorders, persons evaluating children for the presence of ADHD also need to consider several general medical conditions (GMCs) which may result in a presentation similar to that of a child with ADHD. For instance, children with sensory impairments such as hearing difficulties are often described as inattentive or easily distracted. Thus physicians often check for hearing impairments before moving on to further assess for ADHD. Similarly, seizure disorders such as absence seizures may first be described as a child looking as if they are not paying attention. Again, this is often a GMC ruled out during an ADHD evaluation. There are several medications which may result in a significant increase in hyperactivity or difficulty concentrating. These include some medications for seizure disorders such as Phenobarbital as well as certain asthma medications. During assessment, a background information interview can help rule out such medications as causes of any reported symptoms.

Treatment

Treatment for ADHD may take many forms including psychopharmacological, parent behavioral training, or classroom management strategies. The most commonly recommended form of treatment for ADHD across the lifespan is the use of stimulant medications [5]. It has been found to be the most effective treatment option for the core symptoms of ADHD for both children and adults [5, 8]. Commonly prescribed medications include

Ritalin, Adderall, Concerta, and Vyvanse, as well as their derivatives and other available stimulants. Stimulants are available in many forms including immediate and delayed-release, and are available in various mediums such as pills, liquids, or transdermal patches. Stimulants predominantly work by affecting the levels of the neurotransmitter dopamine in the brain, either by increasing the amount of dopamine or the rate of uptake. Stimulant medications are recommended by the AAP as the number one method of treatment for ADHD. As the various stimulants have slightly differing mechanisms of action and dosing schedules, if one type of stimulant is not found to be effective, another type of stimulant is often prescribed by physicians and may have beneficial effects for the child. However, there is evidence that approximately 30% of those with the disorder do not respond to stimulate medication or have significant side effects. Thus several other medications are offered as second-line treatments for ADHD.

Side effects of stimulant medication can include loss of appetite, weight loss, sleeping problems, irritability, headache, stomachache, and a sudden deterioration of behavior. Symptoms of depression, sadness, crying, and withdrawn behavior can also occur. Some studies have also shown that stimulant medication will increase the frequency of tics for those who suffer from Tourette's disorder or another tic disorder. While side effects are certainly possible, they are often the result of inaccurate dosing or are transient in nature. Similarly, while one stimulant many produce side effects in one person, another stimulant medication may not result in any side effects for that same person.

Other medications that have been prescribed for the treatment of ADHD that are not classified in the stimulant domain include atomoxetine, which affects norepinephrine levels in the brain, tricyclic antidepressants, and bupropion. These medications have, in clinical trials, been found to be more effective than a placebo medication. Of these medications, tricyclic antidepressants have the most research support behind them as being an efficacious treatment for ADHD. Atomoxetine is a treatment often requested by patients and parents as it is not a stimulant medication and has less of a chance of producing side effects. While research studies on atomoxetine are more limited than for those of stimulants as it is a newer medication, it has demonstrated to be an effective treatment compared to placebo.

In addition to psychopharmacological treatments, parent management training or behavioral, treatments have also been found to be effective, particularly in conjunction with medication and for children who also have comorbidities [6, 8, 9]. Behavioral parent management training is considered to be a "well-established" treatment by the American Psychological Association Task-Force on Empirically Supported Treatments. This type of treatment helps parents to increase the frequency of positive behaviors as well as modify ineffective discipline techniques and parenting practices. The general concept behind the parent management training programs is one of differential attention. Here, after identifying specific problematic behaviors, parents are instructed to reward positive and prosocial behavior using praise and positive attention as well as rewards. Concurrently, parents reduce the frequency of negative behaviors using techniques of ignoring, time-out and other discipline strategies such as the removal of privileges [6]. Spanking or physical punishment is discouraged and parents are taught how to maintain an effective balance between reward and punishment.

Several treatments exist for aiding a child with ADHD in the school environment. Treatments as mentioned above, such as medication or parent management training, will often have effects which extend to the school environment. Indeed, research has demonstrated that medication is an effective treatment for reducing severity of inattention, impulsivity, and hyperactivity in the school setting. However, in addition to treatments which are provided outside the school, public schools provide children with accommodations to help reduce impairment which may be keeping them from succeeding at the level of which they are capable if they were not impaired by the disorder [3]. For instance, common accommodations given to children with ADHD are extended time on tests, taking tests in separate rooms without distracting stimuli, and preferential seating at the front of the classroom near the teacher and away from doors or noisy air conditioners. These accommodations are designed to "even the playing field" for the child with ADHD so they may perform their best regardless of their disorder. In addition, use of a daily report card has also proven to be effective in the school environment [3]. Here, children's behavior is monitored by the teacher throughout the day and then rewarded at the end of the day by a caregiver based on how well they did. This method uses positive attention and reward to help increase frequency of positive and prosocial behaviors in the school environment.

As mentioned previously, common comorbid conditions for children who suffer from ADHD are learning disorders and states are also mandated to provide services to children with specific learning disorders in the "least restrictive environment" possible. This may include additional accommodations such as being assigned a note

taker in classes, being able to have a "reader" for tests and then answer questions orally, or other such exceptions which would be most helpful given the particular type of learning disorder. States have varying statutes and guidelines on how they decide services are needed and who can make diagnoses that are accepted by the school as accurate. Some schools may demand that their own assessors perform evaluations while other districts will only accept diagnoses of ADHD from a licensed medical doctor, as opposed to a psychologist. Regardless of these guidelines, all states must provide the appropriate services to children with ADHD.

While ADHD is a disorder that affects many aspects of functioning, it is clear the there are treatments in several domains where are effective in reducing symptom severity and impairment in these domains. Medications and behavioral treatments have proven to be valid and reliable interventions for persons of any age

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Attentive Listening

►Active Listening

Attitudes

►Cultural Bias

Attribution

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Definition

Attributions refer to the explanations individuals give for their success or failure in a particular performance, explanations that were described by Weiner along three dimensions, *locus*, *stability*, and *control*.

Description

Attribution theory is a cognitive motivation theory based on the assumption that individuals are rational decision makers. Children are motivated to understand the environment and themselves. By seeking explanations and understanding for the underlying causes of their success, they can predict and control the events that affect them and continue working, with the hope of succeeding again and again. Also, the process of ascribing a reason for failure can guide a child so as to avoid failing again. The process, however, is dependent upon one's beliefs. For instance, if a child believes that his or her success is due to the amount of effort he or she has put into the task, the child will expect to do well the next time he or she approaches similar tasks assuming that effort can determine the outcome. Or, if the child fails and believes that failure is due to his or her low ability, the child may avoid similar tasks in the future so as to avoid failing again. This reasoning process is known as making attributions, and it is a concept introduced in the literature to understand child's motivation and achievement in the classroom.

Attributions can be categorized along three dimensions, locus, stability, and control. It is these three causal dimensions that influence individuals to choose to

continue or to disengage doing a task. Locus is concerned with whether the individual perceives the cause of an event as internal or external. For example, a child with an internal locus of control may attribute success to ability, something that may consequently affect his or her pride and will then influence his or her expectancy for future success, while a child with an external locus of control may attribute success to luck, giving little basis for what future outcomes may be like. The stability dimension refers to whether the cause of an event is stable or unstable across time and events. Ability in this case would be characterized as being stable while effort would be unstable depending on an individual's choice in each new situation. Luck is also unstable because no one is able to predict when good or bad luck will strike. The last dimension, controllability, refers to how much control an individual has over a cause. Effort and strategy would be classified as controllable because the child can control how much effort to allocate to a task and can decide on the strategy to use. Ability, along with luck and task difficulty, on the other hand, are all categorized as uncontrollable because ability is often perceived as something that is genetically determined.

Attribution is more likely to occur if an individual comes upon a situation that is unexpected. Failure is more likely than success to lead individuals to search for reasons for the failure. Children are also more likely to find causes for an event that is important to them. Weiner claimed that children's attributions come from situational cues such as their past experiences, feedback from teachers, observation of the performance of peers, and how much help was received. Weiner also maintained that attributions come from child's self-perception.

Relevance to Childhood Development

Researchers have suggested that young children (five and under) do not have a clear understanding of the possible causes of their successes and failures. They especially have trouble distinguishing between effort and skill. By age six, they begin to realize that effort is an important factor for success. By age nine, children often equate "working hard" with "lack of ability." As children get older, they become more aware of the consequences that follow each attribution. Adults tend to be more sympathetic when children fail due to uncontrollable causes such as illness but get irritated when children fail because they don't try hard enough. Over the years, children develop a predictable pattern of attributions. This pattern may develop as a result of past similar experiences or due to teacher feedback. They develop a general sense of their capabilities and make attributions accordingly.

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Atypical and Major Lifetime Events

►Non-Normative Life Events

Atypical Antipsychotics

►Abilify
►Atypical Neuroleptics

Atypical Delivery

►Birth Complications

Atypical Neuroleptics

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Synonyms

Atypical antipsychotics; Second generation antipsychotics

Definition

A specific group of medications used to treat psychiatric conditions.

Description

Atypical neuroleptics are used to treat schizophrenia and similar conditions. They are more widely used than typical antipsychotics. They provide a higher effectiveness rate in treating the negative symptoms of schizophrenia

and a lowered risk of developing movement problems, tardive dyskinesia, and agranulocytosis, a loss of white blood cells [1].

Abilify (Aripiprazole) is used for the treatment of schizophrenia in adults and adolescents aged 13–17, manic or mixed episodes associated with Bipolar I Disorder, adjunctive treatment to antidepressants for Major Depressive Disorder, and treatment of irritability associated with autistic disorder in patients aged 6–17 [2]. Clozaril (Clozapine) is used for the management of schizophrenia when standard treatment has failed, and for the reduction of recurrent suicidal behavior associated with schizophrenia or schizoaffective disorder [2]. Zyprexa (Olanzapine) is used for the treatment of schizophrenia and acute treatment of manic or mixed episodes associated with bipolar I disorder or as an adjunct to valproate or lithium [2]. Symbyax (Olanzapine/Fluoxetine) is indicated for the acute treatment of depressive episodes associated with bipolar disorder and treatment resistant depression in adults. It can be used adjunct to lithium or valproate for maintenance treatment of bipolar I disorder [2]. Seroquel (Quetiapine) is used for the treatment to schizophrenia and bipolar disorder maintenance for both manic and depressive episodes [2]. Risperdal (Risperidone) is used for acute and maintenance treatment of schizophrenia, bipolar I disorder, and irritability associated with autistic disorder [2]. Geodon (Ziprasidone) is used for treating Schizophrenia and Bipolar Disorder [2]. Invega (Paliperidone) is used for treatment of schizophrenia and schizoaffective disorder as monotherapy or as an adjunct to mood stabilizers and/or antidepressants [2]. The atypical neuroleptics may produce extrapyramidal side effects, but they tend to produce fewer extrapyramidal side effects than the typical antipsychotic medications.

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Auditory Cortex

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Synonyms

Auditory cortex; Primary auditory cortex

Definition

Auditory Cortex: The auditory cortex is a region of the superior temporal lobe that is involved in the processing of auditory information.

Description

The auditory cortex, a.k.a. primary auditory cortex, of each hemisphere lies within the temporal lobe, and is localized to Heschl's Gyrus, within the lateral fissure. While that which is specifically referred to as the primary auditory cortex is localized to Heschl's Gyrus, it works in combination with the Planum Temporale which lies posterior to Heschl's Gyrus [5]. While these structures are linked neurologically, they are often separated functionally. These functional differences may be tied to differential symmetry of these structures in relationship to brain lateralization. Specifically, Heschl's Gyrus is generally larger in the right hemisphere in comparison to the left, and consequently, Heschl's Gyrus may play a more prominent role in non-speech aspects of language and musical processing [5]. In contrast, the Planum Temporal is generally larger in the left in comparison to the right and is thus believed to play a greater role in actual speech comprehension [5]. While differences may be seen between Heschl's Gyrus and the Planum Temporal, as a whole, the primary auditory cortex processes all aspects of sound, with the neurons demonstrating specialization to respond to certain frequencies [2]. The columns of neurons that lie in more anterior regions of the primary auditory cortex respond most to higher frequencies while those in more posterior regions respond more to lower frequencies [2]. While the cortex largely presents in a contralateral fashion, such that the right hemisphere corresponds with motor output and sensory input of the left and vice versa, the projections of the auditory system provides both ipsilateral and contralateral inputs to the cortex; so there is bilateral representation of each nucleus in both hemispheres [4]. This is due to the fact that projections of the auditory pathways move up from the auditory nerve which contains both crossed and uncrossed pathways, resulting in stimulation of the auditory cortex in both hemispheres. Thus auditory sensation received in one ear is conveyed to the auditory cortex to both temporal lobes [1]. After stimulation of the eighth cranial nerve, the information then passes on to the cochlear nucleus and then to the inferior colliculus, followed by the medial geniculate and then onto the primary auditory cortex [4]. Additional transmission to secondary and tertiary auditory zones follows. The shared reliance on both hemispheres may be seen as a protective factor. In fact, for one to experience cortical deafness (i.e., inability to process

sound due to neurological insult) extensive bilateral lesion involvement of Heschl's gyrus and/or the underlying white matter of this region is required [3].

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Auditory Memory

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Definition

Specific sequences of sounds predict crucial events whether they are aversive or pleasant. The processing of these sequences of these sounds including the processing of speech by humans requires exceptional quality of memory processing (e.g., see maintenance or storage of auditory events for a period beyond their perception). The memory processing of a sequence of tones constitutes a coherent melody.

Description

Auditory events must be processed sequentially and the saliency of that event is established in relation to the previous, Auditory (phonetic) representations in memory occurs when verbal materials are presented visually. Short-term retention of verbal items is better when presented acoustically than if presented visually. The greater the rehearsal time available for auditory than for visual material; spoken items are somehow greater in amplitude than written items. Regency effect in serial recall of verbal items is greater with auditory than with visual presentation of the items and is susceptible to interference from phonologically similar items. Following, the presentation of a nearly supraspan verbal unit usually 7–8 constantans or words, retention of the last component is reduced when an auditory suffix is interpolated between presentation and recall [1].

Memory is the retention of information over time. There are several types of memory. Auditory memory involves being able to take in information that is presented orally, to process such information, store it in one's mind and then recall what one has heard. Basically, it involves the skills of attending, listening, processing, storing, and recalling. There are two kinds of auditory memory: Short-term auditory memory is the ability to recall something heard very recently, while long-term auditory memory is the ability to remember something heard some time ago.

In her book *Learning Disabilities*: There is a Cure, educational therapist Addie Cusimano states that a weakness in auditory memory can have serious consequences in the realm of learning for students. Because students with auditory memory weaknesses pick up only bits and pieces of what is being said during a classroom lecture, they make sense of only little of what is said by the teacher. Afterwards, they are able to recall only a small amount or none of what was said.

"Students with auditory memory deficiencies will often experience difficulty developing a good understanding of words, remembering terms and information that has been presented orally, for example, in history and science classes," says Cusimano. "These students will also experience difficulty processing and recalling information that they have read to themselves. When we read we must listen and process information we say to ourselves, even when we read silently. If we do not attend and listen to our silent input of words, we cannot process the information or recall what we have read. Therefore, even silent reading involves a form of listening."

Research also suggests that students with spelling problems have deficits in auditory memory skills. http://www.audiblox2000.com/learning_disabilities/dica01.htm

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Auditory Processing

►Central Auditory Processing Disorder

(Central) Auditory Processing Disorder

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Synonyms

Central Auditory processing disorder [8, 9]

Definition

"(Central) Auditory Processing Disorder (C)APD is a deficit in neural processing of auditory stimuli that is not due to higher order language, cognitive, or related factors" ([1], p. 2).

Description

- [A person who has (C)APD may exhibit the following behavioral characteristics] difficulty understanding spoken language in competing messages, noisy backgrounds, or in reverberant environments; misunderstanding messages; inconsistent or inappropriate responding; frequent requests for repetitions, saying "what" and "huh" frequently; taking longer to respond in oral communication situations; difficulty paying attention; being easily distracted; difficulty following complex auditory directions or commands; difficulty localizing sound; difficulty learning songs or nursery rhymes; poor musical and singing skills; and associated reading, spelling, and learning problems ([1], p. 8).

Not all individuals diagnosed with (C)APD display the same symptoms. Different functional symptoms may be connected with different auditory deficit combinations. Furthermore, people who have the same auditory deficit might be impacted in different ways [1]. Conditions that are co-morbid with (C)APD might include learning disabilities, speech and language disorders, attention deficit disorder/attention deficit hyperactivity disorder, peripheral hearing loss, emotional disorders, and psychological disorders [2].

The occurrence rate of (C)APD in children is unknown [7]. However, estimates of the prevalence of (C)APD in children vary between 2 and 5% [6, 7]. Boys are more likely to have this disorder than girls [9].

The underlying cause of (C)APD is usually unknown [6, 10, 11]. The development of (C)APD is most likely influenced by both inherited and environmental factors [10]. The majority of people with (C)APD do not display frank Central Auditory Nervous System (CANS) lesions; however, there is significant evidence from autopsies that they display neuromorphological abnormalities within the Central Nervous System auditory areas [1]. Conductive hearing loss might contribute to (C)APD [10]. Possible risk factors of (C)APD include chronic otitis media, low birthweight, and prematurity [7].

According to the consensus conference of ASHA, the following indicators are used to diagnose (C)APD: case history, systematic observations of auditory behavior, audiological tests, and speech–language pathology measures [9]. Types of tests that are used to diagnose (C)APD include auditory temporal processing and patterning tests, binaural interaction tests, dichotic speech tests, monaural low-redundancy speech tests, auditory discrimination tests, electroacustic measures, and electrophysiological measures [1]. The majority of these tests should not be administered to children younger than the age of 7 [4, 9]. Test batteries designed to assess (C)APD include the SCAN-C: Test for Auditory Processing Disorders in Children-Revised and the SCAN-A: Test of Auditory Processing Disorders in Adolescents and Adults [9]. Assessment can be influenced by other disorders that impact the functioning of audition such as language impairment, ADHD, reading disability, learning disability, Autism, and reduced intellectual functioning [4, 9]. Although the cooperation of a multidisciplinary team is necessary during the assessment process, an audiologist is responsible for making the actual diagnosis of (C)APD [1, 3, 4].

A child might display the following specific deficits: Binaural Separation and Binaural Integration Deficits, Monaural Separation/Auditory Closure Deficits, Auditory Patterning/Temporal Ordering Deficits, Auditory Discrimination Deficits, Binaural Interaction Deficits, and Temporal Processing Deficits [3]. According to the Bellis/Ferre model, (C)APD can be categorized into the subtypes of Auditory Decoding Deficit, Prosodic Deficit, and Integration Deficit based on patterns that correspond to different locations of brain dysfunction. Each of these subtypes is characterized by different result patterns on the auditory assessment [3].

Some professionals doubt that CAPD exists as a separate entity [8]. However, ASHA [1] believes that there is "sufficient evidence to support the neurobiological and behavioral existence of CAPD as a diagnostic entity" (p. 15). Another source of disagreement is whether or not (C)APD is modality specific [1]. American Speech-Language-Association [1] disagrees with definitions of (C)APD that state the condition is completely modality-specific.

Relevance to Childhood Development

Children who have (C)APD often display co-morbid cognitive, learning, and language deficits [6]. Children's learning difficulties, as well as communication deficits, might have an adverse impact on their self-esteem development and self-worth. Also, academic difficulties are typically associated with (C)APD. Children with (C)APD might be more likely to experience behavioral, social, and emotional difficulties. Early intervention is important because treatment may lessen the likelihood of the occurrence of these secondary problems [1]. Treatment usually consists of three procedures: compensatory strategies, direct skills remediation, and environmental modifications that are delivered simultaneously [1, 4].

Compensatory strategies typically help children strengthen their central resources so that they can use these particular resources to help overcome their auditory disorder. Many compensatory strategy approaches instruct children to take responsibility for their personal listening failure or success. In addition, such approaches teach children to actively participate in daily listening activities through various problem-solving and active listening techniques [1, 4]. Examples of activities that can reinforce good listening skills with children, preschool-aged and older, are: listening to stories, following directions, inferencing, engaging in activities that reinforce executive strategies, and participating in activities that help with the development of metalingustic skills [5].

Environmental modifications improve access to information presented auditorily [4]. Examples of such modifications that can be used in the classroom include reducing reverberation by covering reflective surfaces, utilizing acoustic dividers, utilizing other absorption materials all through empty or open spaces, altering the location of study places, and removing external sources of noise from the learning area [1]. Possible environmental accommodations that can be utilized to improve the listening environment are

- preferential seating for the child with (C)APD to improve access to the acoustic (and the visual), use of visual aids, reduction of competing signals and reverberation time, use of assistive listening systems, and advising speakers to speak more slowly, pause more often, and emphasize key words ([1], p. 12).

There are a number of direct treatment attempts to remediate (C)APD. Various treatment activities address particular auditory deficits. Some treatments might be computer-assisted whereas others might incorporate individual training with a therapist. Examples of computer-based auditory training (CBAT) software programs are Brain Train, Fast ForWord, Earobics, Laurete Learning Systems, Foundations in Speech Perception, Listening and Communication Enhancement (LACE), Learning Fundamentals, Sound and Beyond, and Otto's World of Sounds [12]. Treatment might be delivered at school-based, clinical-based, or home-based therapy sessions. There is not a universal treatment approach that is appropriate for every child that has (C)APD. All aspects of therapy, such as the type, duration, and intensity, needs to be very individualized and programmed for the child's specific auditory disorder. The amount of a child's auditory deficits that will improve as a result of therapy cannot be predetermined. Some children are entirely ameliorated of their auditory difficulties whereas others might display some small degree of deficit their entire life [4].

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Augmentative and Alternative Communication (AAC)

►Augmentative Communication

Augmentative Communication

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Synonyms

Augmentative and alternative communication (AAC)

Definition

The use of communication systems other than speech.

Description

Individuals with significant speech impairments (i.e., those with disabilities such as autism, mental retardation, cerebral palsy, deafness, blindness, and quadriplegia) cannot use expressive communication to indicate their needs and share social interactions. Augmentative communication is the term used to represent a set of communication systems used as replacements for speech for these individuals [1]. There are many forms of augmentative communication such as sign language, picture selection, and speech output devices.

Augmentative communication can be divided into "low-tech" and "high tech" categories. Sign language and picture-based communication are two forms of low-tech communication. Sign language is the production of hand movements representing letters and words. Deaf people use sign language as a replacement for speech, though sign language is also used by individuals with developmental disabilities. There are a variety of signing systems such as American Sign Language and signed English. In addition to sign, pictures can be used as an augmentative system. Individuals can be equipped with a set of pictures that can be handed to others to indicate requests or other points of conversation. Sentences can be formed by placing pictures in a row. The Picture Exchange Communication System is a system commonly used with children with autism. High-tech augmentative communication devices vary from a single button that emits a word or phrase to a computer that contains hundreds of icons and speech-output capabilities. Single buttons and laptop computers can be placed on a child's wheelchair for the child to use to communicate.

For individuals with severe motor impairments such as quadriplegia, augmentative communication systems involve moving only the head or parts of the head (e.g., mouth, eyes) to move devices that select messages. People can be equipped with a device that goes in the mouth and subtle mouth movements move a cursor that selects words. Laser devices can be connected to one's eyes so that words or pictures can be selected simply by looking at them. A button that generates spoken messages can be placed next to a child's head so that only a simple head movement activates the message.

Steven Hawking, the British theoretical physicist who has significantly limited muscle control due to amyotrophic lateral sclerosis, uses an augmentative communication device. Dr. Hawking has a computer attached to his wheelchair with words displayed on the screen. A cursor moves along the words and by touching a button with his finger, but without moving his entire hand, Dr. Hawking selects a word to express. Once a string of words is selected, he selects an icon that expresses the words using a speech output device. This type of augmentative communication system can be used with young children as well [2].

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Authoritarian Parenting Style

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Definition

Authoritarian parenting is an approach to child–parent interactions wherein the parent maintains large degrees of control over the child's life and wherein parental interactions are based on a strict hierarchy of power.

Description

The authoritarian parenting style (authoritative parenting style) is one of the four distinctive approaches described in depth by Dr. Diana Baumrind. Of these four approaches, the authoritarian style is most distinctly characterized by an expectation of conformity and strict adherence to the rules determined by the parent figure. This style has been described as a conservative approach to parenting. It is also described as being both high in demands of the child by the parent as well as high in parent responsiveness to the actions of the child [5].

Authoritarian responsiveness to the child's behaviors is commonly characterized by a conditional expression of warmer, more emotional support for the child when compared to other parenting styles. These expressions of emotional warmth are often tied to the child's achievements and successes at matching parental desires [3]. This parental modality of parent-child interaction is related to the conceptualization that the parent can and should act as the sole interpreter and director of the child's life [1].

Within the authoritarian parenting style, the justification of parental expectations is often based upon the parent's role as an authority figure over the child. Having the ability to exercise control over the child is of paramount importance to the authoritarian parent. As such, one of the key, established features of an authoritarian parenting style is the high degree of rule enforcement and the low degree of encouragement for the child's expressions of individuality and independence. [3]

Differentiation of Parenting Styles

In an authoritarian family, the child is often expected, without direction, to figure out the rules governing parental interactions and expectations. As a result of this characteristic of the parent–child interactions, the child is either less likely to develop initiative and curiosity or prone to rebel against parental norms [4]. The authoritarian parent relies on a non-negotiable method of strict direction for the child. This style comes in stark contrast to the direct, explanatory methods of communication employed by the authoritative parent. The use of power by the authoritarian parent in maintaining control over the child has been found to be less effective in adolescence than in childhood, suggesting that the authoritative reasoning style should be adopted at some point [2].

Authoritarian parents do not demonstrate a lack of concern with the actions of their children, as is evident in the neglectful parenting style. Authoritarian parents also do not have a lowered level of behavioral expectations for their children, as is often characteristic of ►permissive parenting. Another point of demarcation between the authoritarian and the permissive parent is the high degree of willingness of the authoritarian parent to blame the child for the results of his actions and punish him accordingly. This demarcation comes in stark contrast to the externalization of blame seen in permissive parenting interactions.

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Authoritative Parenting

►Inductive Parenting

Autism

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Synonyms

Acquired autism; Autism spectrum disorders; Autistic disorder; Classical autism

Definition

Autism is one of the pervasive developmental disorders, as described in the *DSMIV-TR* [1]. It is considered to be a developmental disability, characterized by qualitative impairment in reciprocal social interaction qualitative impairment in communication skills, and by restricted, repetitive and stereotyped patterns of behavior.

Description

History

Although autism has certainly been in the headlines over the last 10 years, the disorder is undoubtedly much older. Autism is thought to have occurred throughout history. It is also known to be present in virtually all human societies known to science. Throughout the years stories have been written about unusual individuals with special abilities,

odd behaviors, or other attributes that set them apart. In the medical literature of the nineteenth century, a boy named Victor was described as a "wild boy." He appears in literature as The Wild Boy of Aveyron, or Victor of Aveyron [15]. Victor was "discovered" and variously institutionalized and "studied" by interested parties in the Toulouse area of France. A young medical student, Jean Marc Gaspard Itard eventually decided to take the case on himself. He worked to teach Victor to speak and to react in the way that persons of that era were expected to behave. Close reading of Itard's report about Victor brings to mind some of the characteristics which Dr. Leo Kanner noted in the late 1930s and 1940s as he wrote in his definitive paper, published in 1943, "Autistic disturbances of affective contact" [7]. In this seminal paper, Dr. Kanner described a group of young patients who had severe social communication deficits, problem behavior, and a seeming pattern of self-absorption.

Prior to Dr. Kanner's work, the word "autism" appeared in the literature of psychiatry in the work of Eugen Bleuler, a Swiss psychiatrist who is thought to have been the first to use the term, writing within the first 2 decades of the twentieth century. His usage referred to the symptoms of aloofness, or poor interpersonal relatedness observed in persons having schizophrenia. Indeed, from the time Kanner's work came into the public arena, until perhaps in the 1960s to 1970s, autism was felt to be a type of schizophrenia. Presumably the disorder was caused by cold, rejecting parents and treatment often involved hospitalization in a psychiatric facility.

In the 1960s investigators began to pay attention to the symptoms they saw in individuals having autism. Further, the emerging field of neuroscience created a mindset that began to consider the possible neuromaturational processes that seemed to be compromised in the persons who had autism. There were differences in relatedness, in verbal and nonverbal communication skills, and in behavior which were evident by a very early age without any evidence of neurological trauma or degenerative disease. Further, many persons having the autism diagnosis had parents who were warm and very appropriately socially related. A consensus gradually emerged rejecting the notion of faulty parenting as the etiological factor in autism. Science began to direct its attention to a variety of causal pathways. Work continues in this vein to the present.

It was not until 1990 that autism was added to the list of disabilities which qualified pupils for special education and related services under the Individuals with Disabilities Education Act [16]. With the publication of the *DSM III* in 1980 autism was added to the lexicon of psychiatry. The criteria which currently are used for diagnosis in the United States have been refined through the subsequent iterations of *The DSM* and will likely improve yet again with the unveiling of the next version of *The DSM*.

Epidemiology

Many investigators have attempted to look at the incidence of autism in the last 5–10 years. In a number of their studies, cases are included for autism, Asperger's disorder and pervasive developmental disorder not otherwise specified (PDDNOS). In such studies, the average rate in the USA is reported to be around 1 in 150. In a Canadian study which looked at incidence for each of the three diagnostic groups, autism was found to occur at a rate of about 2.2 per 1,000 individuals. In the American Academy of Pediatrics' review article on autism published in 2007, it was reported that the best estimate of the occurrence of the autism spectrum disorder in the North America and Europe is about 6 per 1,000 [6].

Criteria

The deficits and behavioral differences of autism are described in terms of three categories of symptoms. For the diagnosis to be given, the affected person must display a total of 6 symptoms from the 3 categories, with at least 2 of the symptoms reflecting differences in reciprocal social interaction [1]. Part of the difficulty in understanding autism lies in the fact that the deficits under consideration are said to represent "qualitative" impairments, rather than concrete deficits which might be characterized in terms of some metric.

With regard to the impairments of social interaction, the *DSM* suggests four types of symptoms. First, there are possible differences in use of nonverbal behaviors to regulate interaction. This might be manifest in poor eye contact, unusual body postures, lack of or inappropriate facial expression, and poor use of gestures to communicate. Next, the *DSM* further posits possible differences in development of peer relationships. It is not uncommon to find individuals with autism who relate with some success to adults but for whom relating with same age peers is markedly different than the norm. The third area where differences in reciprocal social interaction appear is in the area of wanting to share one's enjoyment of an item or activity, for example, as when a youngster proudly displays some project he or she has done for adult admiration. Persons diagnosed with autism spectrum disorders may not have this same drive to share their interests or

achievements. A final area of difference is in the area of social reciprocity. Persons having autism may not display the expected amount of social reciprocity, and may seem insensitive, uncaring, etc.

The *DSM* diagnostic criteria list several potential areas which may reflect the qualitative differences in communication skills. The most obvious symptom which may be seen is significant delay in the acquisition of language, which in some cases may be a total lack of spoken language development. What is most telling about such cases is that there is also a failure to attempt to use nonverbal means to compensate for the spoken language delay. In persons who develop spoken language, a second symptom category may be seen. This symptom is difficulty starting or maintaining conversational interchange. The "small talk" which most persons take for granted is incredibly difficult for many individuals with autism. In the third symptom relating to a lack communication skills one looks for repetitive language patterns or idiosyncratic language. Reciting bits or even whole chunks of movie scripts, immediate and delayed echolalia or odd, indirect ways of naming things are examples of this sort of deficit. The fourth difference in communication skills spelled out in the *DSM* points to a lack of varied, spontaneous make-believe play as well as possible deficits in social imitative play relative to the developmental level of the child. Many children diagnosed with autism have little to no make-believe play and rarely engage with other youngsters in childhood games such as "London Bridge" or the like.

The third category of symptoms listed in *the DSM* is the most apparent at times, at least for the untrained observer. Conversely, these symptoms may be the least salient in actually establishing the diagnosis. According to the *DSM* there must be at least one of these symptoms said to represent restricted, repetitive, and stereotyped patterns of behaviors, interests and activities. It is within this category that some of the unusual behaviors are noted. For example, the first possible symptom listed is preoccupations with interests that are either unusual with regard to intensity or simply with regard to content. A child who is exclusively interested in trash cans to the exclusion of other toys, persons, etc. would be manifesting this difference. Likewise, the young girl who gets interested in dinosaurs and plays with and talks about nothing else would meet this criterion. Second, the DSM describes a fondness for non-functional rituals and routines. Many individuals with autism know precisely how their world is supposed to be and become extremely distressed when there is a deviation from the expected course of action. A little boy in preschool may have a "meltdown" on the day when there is a school-wide assembly and his class fails to follow the usual from school course of events. Likewise a child with autism may become hysterical when a parent drives home from school by a "different" route because of the need to run an errand. The third symptom of this category is repetitive motor mannerisms such as hand-flapping, finger-flicking, rocking, spinning, etc. The final symptom named is preoccupation with parts of objects. Some children with autism line toys up rather than using them as they are intended to be used. Others may enjoy spinning the wheels on their toy cars or opening and closing the doors on the cars rather than racing them about or crashing them into one another.

To conclude the *DSM* criteria is the specification that the differences in functioning must be reported to have existed before 3 years old in at least one of the following areas: social interaction, social language or symbolic or imaginative play. There is also a qualifier which states that the symptoms being noted are not accounted for by Rett's disorder, or childhood disintegrative disorder, two of the five pervasive developmental disorders along with autism, Asperger's disorder, and pervasive developmental disorder not otherwise specified (PDDNOS).

Diagnosis

Although experts are unanimous in considering autism a neurobiological disorder, the diagnosis remains one for which there is no medical test or study. Diagnosis of autism is based upon clinical judgment, which may be built upon several kinds of information. Several practice parameters have been issued by professional groups to attempt to create an irreducible minimum standard for diagnosis. Experts emphasize the need to maintain a developmental perspective in assessment and to realize that symptoms will be present, though changed, across the lifespan of persons having this diagnosis. These considerations form the basis from which the diagnostic process must move. Autism is increasingly being diagnosed in young children with 18 months of age not being an unusually early age in specialized assessment clinics [6].

At the basis of any diagnosis, there must be a careful review of the symptoms as described in the DSM and a consideration of how, or if, the patient's developmental history reflects the deficits that would be said to characterize a person having autism. From the early 1990s until the present, there has been a gradual development of standardized instruments which aim to bring some degree of consistency to the diagnostic process. There are a variety of rating scales, observational tools, and interviews which may be used to look at symptoms of autism. Expert consensus usually holds the Autism Diagnostic Interview [13] and the Autism Diagnostic Observation

Schedule [8] be the "gold standard" in diagnosis [11]. Yet even with that level of endorsement, both instruments' users' manuals state clearly that no instrument is adequate on its own to establish the diagnosis of autism. Clinical skill is of paramount importance. Generally clinicians need the opportunity to develop diagnostic skills under the supervision of a clinician who has wide experience in working with persons having autism.

When the diagnosis of autism is suspected, establishing the hearing acuity of the patient is fundamental. An overall consideration of the patient's health status should also be undertaken. Several sets of expert guidelines prescribe specific patterns of screening and inquiry, and should be of particular value to primary care medical providers. In about 25–30% of cases of children having autism, there is a documented history of regression in language skills. These youngsters have begun to use words but then stop and do not regain their language acquisition appropriately [6]. The inquiry in these cases must include careful examination of neurological pathology.

Causes

Since professionals began to attribute autism to neurobiological causes, many theories have arisen about the possible origins of the disorder. Although a large proportion of funding for research into autism has been directed toward clearly delineating the cause, it is probably safe to say at this point in time that the cause of autism in unknown. Many would agree that the "cause" is probably multi-factorial involving genetic and pre-natal influences. Others would argue that post-natal events are also a part of the picture but this assertion has little evidence to back it.

Among the most widely disseminated theories of causality has been the belief that vaccines, or some components of the vaccines, are somehow related to the onset of autism. Brain research [2,3] has found evidence of differences in brain tissue related to developmental events which occur before the end of the first trimester of pregnancy. If that is indeed the case then the disease would been present long before any vaccines were administered. Research in the USA and abroad has reported over and again that there is no link between vaccines and autism. Indeed, some studies report higher rates of autism in unvaccinated populations probably due to the long known link between certain diseases in early pregnancy and post-natal problems, including autism. The best known of such diseases would be rubella which had been virtually eradicated in the USA through vaccination programs until recently. Rubella in the first trimester of pregnancy is known to have been associated with developmental abnormalities including mental retardation and a pattern of symptoms we would recognize as autism.

Many other potential causes have been postulated and subjected to varying degrees of scientific investigation. Some have written about gut abnormalities and an "endogenous opioid" theory of causality. Others have suggested that there is excessive yeast within the system of the person with autism. Some believe that oxidative stress [5] is important. Others have investigated various neurotransmitters and contended that variability herein lies behind the symptoms of autism. Hypotheses have also been put forward about vitamin or mineral deficiencies. As yet, none of these theories has sufficient support to be regarded as fact.

Genetics

With advances in the ability to look at individual genetic materials, professionals are increasingly aware that differences on certain genes appear to be linked with what clinicians call autism. Knowing that autism is a disorder with a highly variable phenotype, it is not surprising that the disorder has an equally variable genotype, with as many as 7–8 genes implicated as relating to the symptoms which collectively we label autism [6]. It is also significant to note that the risk of reoccurrence is 5–6% in families which have a child with autism. Some hold that the risk is higher if the child with autism is female.

Some medical literature differentiates between what is called idiopathic autism versus autism which is associated with another genetic/medical disorder. In clinical practice and in the educational or social service venues such distinctions are rarely made. It is important to be aware that autism occurs at a higher rate than could be attributed to chance in association with certain disorders. In the arena of genetic disorders, we find autism associated with several disorders, most notably Fragile X, tuberous sclerosis, and Down syndrome, to name but a few. Autism is also associated with metabolic disorders such as PKU, adenIosuccinate lyase deficiency, dihyrdopyrimidine dehydrogenase deficiency and others [5]. In spite of all these links, it is reported that about 90% of all cases of autism are not associated with a known medical disorder [5].

Complications

Even accounting for the variable phenotype seen with autism there are other factors which may need to be recognized and addressed to optimize outcomes for children with this diagnosis. As previously mentioned, intellectual limitations affect a significant number of persons with this diagnosis. Among those having fairly intact basic cognitive skills, there is a relatively high incidence of

inefficient learning. This can in some cases be attributed to organizational challenges, and in other cases may represent a specific learning disability. Hand-writing difficulties also complicate the picture.

Anxiety plays a major role in creating discomfort and sometimes fueling behavioral challenges in this group of patients. Mood disorders may also be seen. Psychotic disorders are not common but sometimes do occur. Persons with autism may also display disruptive behaviors, including problems with impulse control, attention, and activity level, as well as conduct problem. There is an emerging body of literature about alcoholism in persons with autism and likely there are other forms of substance abuse.

In the medical realm, seizures are known to affect between 11 and 39% of the population having autism [9]. Onset seems to be either during the early childhood years or in adolescence to young adulthood. It is difficult to predict which individuals may develop seizures, but some authors suggest that seizures are more common among persons having autism and severe cognitive challenges, or motor deficits or an associated etiologic medical disorder [9]. Some literature also reports a sub-set of persons with autism who have gastrointestinal issues. Feeding problems and childhood eating problems are also extremely common and may pose health hazards if diets are excessively restricted [9]. Disordered sleep is another common problem in children with autism. This may exacerbate challenging behavior and is an important area for intervention.

Relevance to Childhood Development

Individuals who live or work with persons having autism would report that these persons often have differences and challenges with regard to learning, sustaining attention, and dealing with various sensory experiences. Although these differences may have the greatest impact in childhood, their impact remains evident in many cases right into the mature life of the individual.

Given that autism is a very heterogeneous disorder with symptoms affecting persons with incredibly variable abilities and symptoms it is important to consider the ranges of ability and behavior that may be seen within the population diagnosed with this disorder. The variability that is found having children having the autism diagnosis has led to characterizing autism as a "spectrum" disorder. Intellect is perhaps the best single predictor of prognosis. Persons with autism may have abilities covering the full range of abilities. Among persons meeting criteria for the autism diagnosis, epidemiologic data has traditionally suggested a rate of mental retardation approaching 60–80%. Language ability is closely related to intellect and is an area that also predicts outcomes well. Most person having autism eventually develop some spoken language but there are a number of individuals who remain nonverbal and require the use of some sort of augmentative communication system to achieve any degree of independence. Persons with this diagnosis also differ with regard to their social interest. Some persons will have social interest and attempt interaction but lack appropriate social communication skills for success. Other individuals will be highly avoidant and do their best to avoid the need to be in the company of others. Variability is also found in the area of motor skills. Although many person diagnosed with autism develop their gross motor skills in a typical fashion, some display marked delays and may benefit from therapies. Others show delays in the acquisition of fine motor abilities required for self-care activities and basic academic tasks and may benefit from treatment in this area. A fifth area of variability is in sensory responsiveness. Some individuals are hyper-responsive to stimuli in the environment and may avoid loud sound, touch or other specific types of stimulation. Another group of persons is hypo-responsive and may want to move, touch, sniff or taste constantly. Activity level would be the final broad area where variability is seen some persons with autism display extreme levels of hyperactivity, while others are profoundly passive. Most are somewhere in between.

In the literature about autism, psychological theories have been put forward attempting to explain the underlying social communication deficit(s) exhibited by children having autism. Two of the better known theories are Theory of Mind and Central Coherence Theory [4]. Theory of Mind, according to Happe is the ability to attribute thoughts and mental states to others and to oneself in order to explain behavior. Central Coherence refers to the ability to draw upon many pieces of information in order to make sense of things in a given context. Some have said that deficits in central coherence lead to an individual being unable to see the forest for the trees. In all likelihood neither of these theories completely explains the difficulties children with autism have in making sense of the complex world of social communication.

Treatment

At present, there is no treatment that "cures" autism, although such claims are sometimes made. The natural course of the disorder is for some degree of improvement. Skillfully designed and executed educational and behavioral programming can lead to real gains in functional skills and lead to major decreases in problem behaviors and notable improvement in areas of deficit. Interventions

based upon the principles of applied behavior analysis are best supported of all such programs researched [12]. Such programming is high-intensity, expensive, and requires a high commitment from family, caregivers and educators to be successful. Less intensive programs using behavioral principles may be beneficial but are not likely to have the potential impact of a traditional behavioral program. Specially designed educational methodologies, most notably the TEACCH program have also been shown to have value. Such structured educational strategies use simple visual systems including schedules and work space set-up, along with work-reward systems, and building functional communication skills. Many other approaches to autism have been developed and marketed. Many have no scientific backing. Although various purveyors of services often tout their approach as the "best," the evidence at present suggests that young children with autism show benefit from several kinds of daily interventions [12]. The challenge for parents is wading through the competing claims of persons who offer products and services purporting value for children having autism.

Depending upon the age, language level and behavioral presentation of a child with autism, social skills may or may not seem like a high priority for intervention. When children are young, parents and caregivers often are much focused upon acquiring academic skills. If there are behavioral challenges, these too often predominate when interventions are planned. In the long run, social skills are critical for success in independent functioning and successful integration into the community. Social skill interventions need to be designed with levels of service. For example, a child might attend a "social skills group" and learn about specific topics of interest, along with other girls and boys having the autism diagnosis. To insure that the lessons from group are "carried over" family/caregivers must be aware of the focus of group sessions, and attention given to providing various opportunities in natural environments such as school, church, and other social settings to assure generalization of newly presented skills. The need for social skills intervention cannot be emphasized enough and is a key to life success for children with autism [9].

Medically, there is support for the use of several psychopharmacological agents to treat specific symptoms which cause difficulty for some people having autism. Anxiety, aggression, depression, hyperactivity, and attentional/impulse control issues may all respond to medical intervention, at least in a portion of all cases. Other types of medications sometimes prescribed include medicines which help with sleep and medications which address specific gastrointestinal issues [9].

The National Academy of Science assembled a diverse group of autism practitioners to review existing research and make recommendations with regard to the best types of programming for children having autism. In their findings the Academy group [10] notes that there is no data that shows a clear, direct relationship between any particular intervention and children's progress. The group also concluded that treatments must include regular measurement of treatment effects. This presumes that all treatments have measurable, observable goals which would lend themselves to data-collection and analysis. The Council suggested that children begin to receive services as early as possible, and that they be actively and intensively engaged in programming which lasts all day, five days a week, every week of the year. A particularly important finding, in terms of treatment planning is that improving attention to people and improving imitation skills are critical areas to target in early intervention programs.

Future Directions

Attention to the causal factors associated with autism continues to be an important direction for investigation. Equally important however is the development of sophisticated population level research on intervention efficacy in order to determine which interventions work best for specific types of persons having autism. Such knowledge would enable service providers better to tailor services to the needs of the client and guarantee the best utilization of the funds available for services. Consensus building among the autism community is also needed to diminish the conflict which undermines the ability of the community to seek the best services for all members without the rancorous strife which diminishes the voice and resources of the community. Systems of care are needed which support families having children or adult loved ones living with autism. Resources must be directed toward optimizing family functioning as there is a well-documented association between family well-being and positive outcomes for persons having ▶developmental disabilities. In spite of all the gains that have been made in assessment and treatment for autism, there remains a need for realistic aspirations and a practical understanding of outcomes for persons given this diagnosis. A 1996 article by Ruble and Dalrymple [14] wisely stated that there are many factors influencing outcomes beyond those traditionally mentioned (e.g., language and cognition) and urged a reconceptualization of outcomes generally looking at a broad array of factors which may predict outcomes, including those mentioned before, as well as social skills, vocational

development, broad life experience and a host of sometimes neglected factors, all of which may in some way work together to determine "outcome" for persons having autism ultimately.

Another very important area for future emphasis is public and professional awareness efforts. Given the well-documented benefits of early intervention for children having autism, it is imperative that professionals in medicine, early childhood education, and many other fields, along with the general public be aware of possible warning signs that early social communication development may be on an aberrant course. The 2007 AAP article suggests many possible warning signs among them being poor use of gaze, disregard for other's speech and delayed onset of babbling, deficits in prespeech gestures such as pointing and waving, and failure to respond to parents' voices [6].

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Suggested Resources

Autism Society of America: http://www.autism-society.org

NEA educational guide: http://www.nea.org/specialed/images/autismpuzzle.pdf

Autism best practices: http://www.autismtoday.com/articles/article_autismbestpractices.pdf

American Psychological Association link to autism resources: http://www.apa.org/topics/topicautism.html

Families for Early Autism Treatment: http://www.feat.org

American Academy of Pediatrics resources: http://www.aap.org/healthtopics/autism.cfm

Autism Behavior Checklist

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Synonyms

ABC

Definition

The Autism Behavior Checklist (ABC) was designed to offer a method to more objectively identify autism in children. The scale utilizes an observer's rating of the child's behavior to quantify behaviors typically associated with Autism.

Description

The ABC was developed as a clinical measure to screen for autism in individuals 3–35-years-of-age. The scale was developed in 1980 and has not undergone revision since then. The ABC consists of 57 item and 5 scales (1) Sensory, (2) Relating, (3) Body and Object use, (4) Language and (5) Social and Self-help [11].

The items included in the ABC were grouped on the five subscales primarily based on face validity. The items themselves were chosen from many sources, including Kanner's [6] article which first outlined autism and Lovaas et al. [8] work on autism.. After items were written and finalized, internationally recognized experts in the field of autism were asked to provide feedback for the scale. The last stage of scale construction involved sending the scale to 3,000 special education professionals. After feedback from these professionals, weights were then assigned to the individual items [7].

The ABC total score is used to determine the likelihood of autism. Higher scores indicate the presence of more behaviors consistent with autism. The authors of the ABC assigned individual items a weight of 1–4 according to that behavior's relevance to autism. A total raw score of 68 or higher is used as a cut-off for indicating a high probability of autism, whereas a score between 53 and 67 indicates questionable autism, and scores of 53 or lower are considered unlikely to indicate autism. This score corresponds with one-half a standard deviation below the mean of children with autism who were included in the standardization sample [7].

Several researchers have conducted factor analyzes of the ABC to check for the content validity of the scales with mixed results [9]. In these studies, the Sensory scale typically appears to have the lowest validity. This fits with other conceptualizations of Autism; for example, even the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) does not specifically include sensory deficits as diagnostic criteria for autism [1]. This provides further evidence for the use of the ABC as a screening tool rather than a strict diagnostic measure. Clinicians should exercise caution when using individual scales of the ABC to screen for autism and instead should utilize the entire checklist and its total raw score [5]. In addition, the ABC has not been shown to distinguish autism from other cases of developmental disorders as well as some other autism screening measures, such as the Childhood Autism Rating Scales (CARS) [10]. Overall, the ABC has a concurrent validity coefficient of 0.67 with the CARS [4]. The ABC shows a concurrent validity coefficient of 0.80 with the Pervasive Developmental Disorders Rating Scale (PDDRS) [2, 3].

The ABC total raw score has shown adequate reliability for screening purposes, though the scales individually have shown less reliability. Test–retest reliability reported by the authors is 0.87, but few other studies have examined test–retest reliability with the ABC. Measures of interrater reliability have also shown mixed results. It should be noted that many of the studies which show low interrater reliability tend to compare parent and teacher ratings. In these studies, parents tend to have higher total scores than teachers. It is possible, however, that the different environments seen between the home and school could account for some this variability. Clinicians should carefully consider the lack of strong interrater reliability evidence when comparing scores obtained by parents and teachers on the ABC.

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Autism Spectrum Disorders

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Synonyms

Acquired autism; Autism; Childhood disintegrative disorder

Definitions

A group of developmental disorders that include ►Autistic disorder, ►Pervasive developmental disorder not otherwise specified, ►Asperger's disorder, ►Rett's disorder, and ►Childhood disintegrative disorder. Some experts exclude Rett's and Childhood Disintegrative disorder from the group called "Autism Spectrum Disorders."

Characteristics

Autistic disorder: A pervasive developmental disorder that is diagnosed behaviorally, based upon observation and review of developmental information. Symptoms must include at least two incidents of qualitative in reciprocal social interaction (i.e., failure to use non-verbal behavior to regulate social interaction, failure to develop peer relationships, lack of shared enjoyment, and a lack of socio-emotional reciprocity). There must be at least one deficit in communication skill (i.e., lack or delay in spoken language without use of gesture to compensate, lack of varied spontaneous make-believe or social imitative play, relative failure to initiate or sustain conversational interchange, or stereotyped, repetitive or idiosyncratic speech). There also must be at least one restricted, repetitive and stereotyped pattern of behavior (i.e., encompassing preoccupations or circumscribed interests; apparently compulsive adherence to nonfunctional routines or rituals, or preoccupations with parts of objects or non-functional elements of material). Symptoms must have been present before the age of 3 years, although the diagnosis may not be made until after that age (APA, 2000).

Pervasive developmental disorder not otherwise specified: This pervasive developmental disorder is also labeled "Atypical autism" and generally is construed to be a case where the youngster does not meet the full criteria for the diagnosis of Autistic disorder but nonetheless has significant impairment in reciprocal social interaction. *DSM* criteria do not require communication differences nor are the unusual interests and behaviors necessarily present. Another way this diagnosis is different is in the fact that there is no requirement for symptoms to have been noticed before the age of 3 (APA, 2000).

Asperger's disorder: This diagnosis is a Pervasive Developmental disorder which has the same criteria as Autistic disorder with two notable differences. First, Asperger's disorder presumes a history of no significant delays in language development. To be specific, *DSM* criteria state that there must have been single word s used meaningfully by 24 months of age, and then multi-word utterances used by 36 months of age. The second criterion which sets Asperger's apart from Autistic disorder is the requirement that the individual so diagnosed have relatively intact development in the cognitive and adaptive spheres. Unfortunately, the *DSM* does not specify precisely what is meant by this, and there is no uniform level of ability followed in diagnostic clinics. For the most part clinicians tend to not use this diagnosis for individuals who have full-scale IQ's of less than 70, but variability does exist. To receive the diagnosis of Asperger's disorder the individual must still demonstrate at least two of the symptoms of Qualitative Impairment in Reciprocal Social Interaction (i.e., failure to use non-verbal behavior to regulate social interaction, failure to develop peer relationships, lack of shared enjoyment, and a lack of socio-emotional reciprocity). Symptoms must also include at least one restricted, repetitive and stereotyped pattern of behavior (i.e., encompassing preoccupations or circumscribed interests; apparently compulsive adherence to nonfunctional routines or rituals, or preoccupations with parts of objects or non-functional elements of material) (APA, 2000).

Rett's disorder is listed as one of the Pervasive Developmental disorders within the *DSM* although it is a known genetic disorder. Genetic testing can be done to obtain a definitive diagnostic confirmation. Rett's disorder has its onset early in life and leads to a loss of early developing motor skills between 5 and 30 months of age and a deceleration of head growth which occurs between 5 and 48 months of age. Most individuals who receive this diagnosis are female. Only recently have a very small number of males been identified. Individuals given this diagnosis typically have severe or profound mental retardation. Five symptoms are specified for diagnosis: (1) head growth decelerates between 5 and 48 months (2) loss of previously acquired hand skills in the age range of 5–30 months and development of stereotyped hand movements, sometimes described as resembling hand-wringing (3) loss of social engagement early on, although such skills may later develop to some extent (4) poorly coordinated gait or trunk movements

(5) severe impairment of receptive and repressive language and severely impaired psychomotor skills. This is thought to be a fairly uncommon disorder, and has a poorer prognosis than all of the other Pervasive Developmental disorders except childhood disintegrative disorder (APA, 2000).

Childhood Disintegrative Disorder is considered to be a Pervasive Developmental Disorder. Children with this diagnosis must have documented apparently normal development for at least the first 2 years of life. This diagnosis is given when a marked loss of skills in multiple domains of functioning occurs sometime between ages 2 and 10. Skills losses must be seen in at least 2 of 5 areas, specifically, expressive or receptive language, social or adaptive behavior, bowel or bladder control, play, motor skills. The *DSM* also specifies that there must be abnormality in 2 of 3 areas which are essentially the same symptoms clusters considered for the autism diagnosis. There may be qualitative impairments in reciprocal social interaction. Communication skills may demonstrate qualitative impairment. Finally, there may be restricted, repetitive and stereotyped patterns of behavior, interests, and activities, including motor stereotypies and mannerisms. This is a very rare disorder. The prognosis is generally not good in terms of the recovery of skills lost, although over time some individuals do make limited progress. In most cases skill loss levels off, sometimes at very low levels of ability. It is critical to know that there is no associated medical condition which leads to the loss of skills. Most individuals given this diagnosis have no medical condition which might lead to the observed decline in functioning. If a medical condition did exist, for example, a head trauma, then this would appropriately be thought of as a dementia (APA, 2000).

Autistic

►Acquired Autism

Autistic Behaviors

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Synonyms

Stereotypy; Stereotypic behavior

Definition

Behavior associated with delays in language and social skills as well as restrictive, repetitive, and self-injurious behavior.

Description

A diagnosis of autism is based on three defining features: a delay in the development of language, a deficit in the amount and quality of social interactions with others, and the expression of repetitive behaviors or restricted interests. Autistic behaviors can be grouped in these three areas. In the area of language delay, autistic behaviors include abnormal speech patterns, using the manipulations of the body parts of others to communicate (e.g., leading someone to a desired item), and not responding to the speech of others. A language pattern seen in some individuals with autism is echolalia, which also falls into the category of repetitive behavior. Echolalia is the repetition of another person's speech. Immediate echolalia is the immediate repetition of another person's speech. For example, if a teacher says, "What's your name?" the child with autism says, "What's your name?" Delayed echolalia is the repetition of speech heard at an earlier point in time. Some children with autism repeatedly say, or "script," parts of movies they heard earlier in the day or earlier in the week or month. Another example of delayed echolalia is answering questions with the same phrase each time, such as "I'm a good boy."

Social behaviors characteristic of individuals with autism are gazing away from others during communication, withdrawing from social situations, and playing or spending time by oneself. Social withdrawal is the basis for describing children with autism as "being locked in their own world." Individuals with high functioning autism or Asperger syndrome often have typical language skills but are delayed in the area of pragmatics, the social domain of language. Common behaviors associated with delays in pragmatics include talking only to meet one's needs and not engaging in "social niceties" or small talk. Conversation is often one-sided and individuals with high functioning autism do not show interest in the activities or thoughts of others.

The third defining characteristic of autism is repetitive behaviors and restricted interests [2]. Children with autism, especially in the severe range of autism, engage in repetitive movements such as body rocking, arm flapping, finger manipulations, and repetitive head movements. Attempts to stop these behaviors are often unsuccessful and some describe the movements as compensation for internal, vestibular, sensory deficits. Some

people with autism describe making these movements as "calming." Repetitive movements can also occur with objects such as string and spinning tops. Children with autism can manipulate string, beads on string, or spinning tops for hours at a time. Repetitiveness in individuals with high functioning autism is manifested by their restricted interests. These individuals feel comfortable talking about only one or two areas of interest, such as computers or World War II history. An individual with Asperger Syndrome might talk only about WWF wrestling and if a communicative partner attempted to change the topic of the conversation, the individual might quickly return it to his favorite topic.

A group of autistic behaviors not associated with a diagnosis but common in children with autism are challenging behaviors such as aggression and self-injurious behavior [1]. Self-injurious behavior occurs in many forms, such as hitting one's head, banging one's head again hard surfaces, hand biting, and trichotillomania (i.e., pulling hair out of the head). The damage caused by self-injurious behavior ranges from minor abrasions to severe damage requiring hospitalization and occasionally resulting in death. These behaviors are managed with behavioral intervention and medications.

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Autistic Disorder

►Acquired Autism
►Autism

Autistic Savant

►Idiot Savant

Autobiographical Memory

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Synonyms

Episodic memory; Long-term memory; Personal recollection

Definition

It is memory for specific, genuine events that are personally experienced and when compiled, they form a long-lasting personal narrative. It is high in self-reference and is subject to personal interpretation [1].

Description

Autobiographical memories tend to be more long-lasting than episodic memories because of their self-referent nature. Information and events that are related to the self are better recalled because we process them more extensively. This results in a more elaborate and deeply encoded memory trace, which generates better recall [2].

There are three different levels of autobiographical knowledge: lifetime periods, general events, and event-specific knowledge [2]. Lifetime periods, such as going to college, are contained at the highest level. The middle level holds general events, which are composite episodes that are experienced over days, weeks, or months. For example, these general events might be a snow skiing vacation or attending college basketball games one semester. Event-specific knowledge involves memories of individual episodes, which are measured in seconds, minutes, or hours [3]. For instance, remembering your first day out on the ski slopes when you fell down in front of a crowd. Each of these levels are woven together to form our personal narratives. Lifetime periods are the skeletal structure of autobiographical memories, so locating a period in one's life (e.g., freshman year of college) makes it easier to find general-event (e.g., attending college basketball games) or event-specific memories [4].

Memory distortions are common in autobiographical memories. However, recollections of extended time periods in the past are generally accurate. Errors are more frequent when reconstructing the particulars of a personal event. When remembering the past, source confusions can occur. This is when we fail to connect the time, object, or action of an event, resulting in misremembering the time and place something occurred

[5]. Our biases get in the way of constructing an accurate picture of ourselves or events. Hindsight biases lead to filtering memories of past events so that they more closely match current knowledge. We also hold consistency biases, which cause us to reconstruct the past as overly similar to the present [5].

Relevance to Childhood Development

Our earliest memories are of events that occurred between 3 and 5 years of age, and the majority of events occurring prior to 5 years of age are irretrievable due to *childhood amnesia* [1]. In contrast, personal memories from the period between ten years of age and the early twenties are particularly accessible. This phenomenon is known as the *reminiscence bump*. It is believed to occur because the events of the teens and twenties constitute a critical period in the lifespan, one in which the individual develops a stable and enduring self-concept [4].

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Autoeroticism

►Masturbation

Automized Naming

►Rapid Automized Naming

Autonomic Arousal

►Anxiety

Autonomic Nervous System

►Nervous System

Autonomous

►Piaget's Theory of Moral Development

Autonomous Motivation

►Internal Motivation

Autonomy

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Synonyms

Individuation; Independent decision making; Self-choice; Self-determination; Self-regulation; Self-reliance

Definition

Opportunities to freely choose, self-endorse, and self-direct one's own behavior following inner interests, while maintaining connectedness.

Description

In earlier theories, autonomy has been viewed as independence, self-reliance, and resistance to external control [3]. Erikson (1963) [2], one of the first theorists to conceptualize autonomy, regarded autonomy as an earlier phase of psychosocial development and identity formation. In his theory, between the ages of 18 months and 3 years, the child is confronted with mastering developmental tasks such as potty training, self-feeding and physical mobility, the successful completion of which eventuates in achieving an adaptive sense of autonomy. A failure at these developmental tasks, on the other hand, results in feelings of shame and doubt. In this sense, autonomy has been equated with achieving authority and capabilities to exercise behavioral control over bodily functions as well as to experiment upon the physical and social environment.

The psychoanalytic tradition, on the other hand, describes autonomy as a process of individuation and disengagement from parents, which initially emerges in the toddlerhood years, and reappears in adolescence [5].

Current theories, however, do not construe autonomy as a unitary, one-dimensional concept akin to behavioral independence and disengagement from parents. Rather, autonomy is conceived as consisting of overlapping, yet distinctive components such as behavioral autonomy (i.e., self-regulation of behavior and independent decision making), cognitive autonomy (i.e., beliefs about control over behavior) and emotional autonomy (i.e., individuation from parents), which develop concurrently. In addition, autonomy is regarded as a universal human need, characteristic of individuals of all cultural backgrounds [4]. The role of agency, self-initiation and self-regulation is emphasized. The satisfaction of the need for autonomy results in enhanced psychological well-being. The reverse of autonomous functioning is perceptions and beliefs of being controlled, coerced to engage in a particular action, which do not stem from the self [1]. Autonomy is not only freedom to choose one's own course of action and determine one's course of behavior, but it also indicates the degree to which the individual has internalized societal values and makes effective choices consistent with them [3].

Relevance to Childhood Development

Achieving autonomous functioning is a key task in childhood and children's ability and motivation to be autonomous incrementally increases through adolescence. Providing children with warm, supportive, yet structured environments is considered a key element to the development of autonomous behavioral, cognitive and emotional functioning, regardless of the developmental stage of the child. It has been suggested that overly restrictive and unsupportive environments limit opportunities for individuals to act in accordance with their own inner interests and desires for self-direction and independent decision making, and therefore, interfere with autonomy development. Authoritarian, permissive and neglectful parenting styles have been found to have a particularly negative impact on autonomy development. In addition, specific parental behaviors linked to negative consequences for autonomy development include: power assertion, love withdrawal, manipulation, intrusion, abusive language, personal attacks, negative evaluative feedback, pressuring children to accepts parental unilateral positions, limiting opportunities for choice, self-expression, and action, lack of discourse, and not engaging in joint decision making [5].

Autonomy gradually evolves over the life span, and at different age periods has unique manifestations. In infancy, parents regulate their children's behavior, closely monitor, set limits and impose discipline. This parental regulation of child's behavior creates not only a context for autonomy development, but it also promotes internalization of standards for appropriate behavior and courses of action [3].

In toddlerhood, there are rapid changes in access to contexts as a product of increased mobility, and incremental changes in language, cognition and social skills. Children become increasingly motivated to exercise these emerging competencies. During this developmental stage, the degree to which a child can make an effective choice depends on his developing physical, cognitive and language capabilities, but also on the appropriate limits and constraints set forth by the caregiver. Parental support, control, and demands play a crucial role for internalizing the standards; they also facilitate future effective choice making in unison with the internalized standards. The emerging sense of autonomy in children is demonstrated by their desire and ability to assert themselves in communicating and interaction with parents and other adults. Early signals of autonomy include resistance to compliance, indexed by the use of phrases such as "No" and "I can do it myself." Children develop self-awareness (i.e., who they are and what they can do), which allow them to regulate and control their behavior, thinking and feelings. Engaging in limited negotiations is another sign of autonomous functioning [7].

In the elementary and middle childhood years, not only do cognitive and physical skills develop rapidly, but children's social interactions increasingly expand to new social contexts. Within this developmental stage, children's striving for autonomy is exhibited in their greater desire to control their own thinking, feelings and behavior. Children become progressively more independent from the family. They begin to express their autonomy by the inclination to perform independently actions such as engaging in activities of their own choosing (e.g., doing homework), making decisions on how to spend their time (e.g., hanging out with friends, watching TV, playing videogames), making choices regarding clothing, and expressing their own independent thinking. This developmental stage is marked by child-parent co-regulation of behavior, as individuation from parents is typically not present.

In adolescence, autonomy development is linked to other developmental processes such as physical maturation, cognitive changes, identity formation, and expanding of social relationships, rights and responsibilities. As a result, adolescents become increasingly self-reliant, self-regulating, more capable of engaging in independent decision making while maintaining healthy social connections with family and peers [5]. Parental support for autonomy has been found to predict adolescents'

enhanced emotional and academic functioning. Autonomy-supportive parenting in adolescence has been associated with a range of positive developmental outcomes, which include increased sense of self-esteem, enhanced academic competence, fewer signs of depression and less antisocial behavior. In contrast, parental psychological control during this developmental stage has been linked to psychological and somatic symptoms, depression, and decreased motivation.

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Autonomy Versus Shame and Doubt

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Definition

Autonomy versus Shame and Doubt is the second stage in Erik Erikson's psychodynamic theory of psychosocial development.

Description

Erikson postulates a theory of psychosocial development that spans the lifespan and emphasizes an interaction between biological needs and the environment. According to Erikson, there are stages in development in which a child's unfolding biological needs and abilities engage the child with significant adults, resulting in interactions that help or hinder the child in meeting healthy psychosocial milestones. The patterns that emerge can be described as involving (1) key areas of the physical body, (2) the types of activity that the child is engaged in mastering at that level of development, and (3) the types of social interactions that result as the growing child relates to others with their new abilities [1]. Additionally, the resulting experiences from each stage lay the foundation for transition through the subsequent developmental stages.

Autonomy versus shame and doubt is conceptualized to coincide with the toddler age group defined as between 18 and 36 months of age. This stage represents the second nuclear conflict described in Erikson's theory and is associated with the anal-urethral-muscular stage. Physically, children at this age are maturationally prepared to experiment with retention and elimination. These two conflicting modes of action are crucial in describing the child's new capacities and the interactions that they have with the environment related to the biological need for elimination [3, 4].

The stage of autonomy versus shame and doubt is characterized by the child getting practice with "holding on and letting go" [3]. While this experience is initially associated with biological needs, the child learns about themselves through interactions with the environment and significant others. During toddlerhood, the child is optimally buffered from experiences of shame and doubt by a firm and comforting sense of trust established in infancy in the first Eriksonian stage of development. Therefore, the child can safely exercise choices over their bodily functions on the path to establishing autonomy and control. Simultaneously, they must also be protected from the danger of harsh exposure to others leading to feelings of shame and fears of being punished that lead to doubt. At the successful conclusion of this stage, the child emerges with a "sense of self control without loss of self esteem" [3] leading to pride in one's abilities. Accordingly, if this stage is marked by a loss of self control or the over control of another, then the child may develop a lasting sense of shame and doubt about their abilities [3].

Relevance to Childhood Development

The Eriksonian stage of autonomy versus shame and doubt is significant to child development as it coincides with and lays the foundation for similar theories of development in the young child. Additionally, Erikson's ideas about the mechanism of exercising autonomy over one's physical abilities and protection from the toxic reactions of others to the toddler's exertion of control converges with theories detailing the origins of maladaptive behaviors and psychopathology [1, 2].

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Average

►Norms

Aversive Stimulus

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Synonyms

Negative reinforcer; Punisher; Unpleasant event

Definition

An aversive stimulus is an unpleasant event that is intended to decrease the probability of a behavior when it is presented as a consequence (i.e., punishment). However, an aversive stimulus may also increase the probability of a behavior when it is removed as a consequence, and in this way it will function as negative reinforcement.

Description

Aversive stimuli have been described in learning texts to include stimuli, when used as a consequence will punish a response [1]. They are contrasted with appetitive stimuli that can be used to reinforce responses. While many people consider aversive stimuli as fear and pain-causing events, it is important to realize that an aversive stimulus for one person could be an appetitive stimulus for somebody else. In fact, for the same person in different contexts and at different times, an event could serve as either aversive or appetitive. Examples of aversive stimuli can include (but are not limited to): proximity of others, loud noises, bright light, extreme cold or warmth, and social interaction.

The ethics and morality surrounding the use of aversive stimuli in the modification of behavior has been questioned, and eventually lead "the aversive controversy" in the 1970s, since then, there is a strong anti-aversive movement, including position statements of advocacy groups, legislative efforts, and development of "positive-only" treatment packages [2].

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Avoidance

►Identity Diffusion

Avoidance Learning

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Synonyms

Avoidance responding

Definition

In the operant conditioning of B.F. Skinner, a behavior-strengthening contingency can involve either of two operations. If an operant response is strengthened (the rate of responding increases) by the presentation of an event after the response, this operation constitutes positive reinforcement. If an operant response is strengthened by the contingent removal or prevention of an event, this operation is negative reinforcement. When an operant increases via the removal or termination of an ongoing stimulus or event, the contingency is termed escape. When an operant increases by preventing a stimulus or event from occurring, this contingent relation between response and environmental change is termed avoidance. A stimulus or event whose offset reinforces operant behavior via these contingencies of negative reinforcement would be termed an aversive stimulus [7]. The acquisition of the response controlled by the latter contingency would be termed avoidance learning or avoidance responding [3, 9].

The study of avoidance learning has seen proposed explanations rise and fall and be replaced by proposed alternatives for decades. Organisms typically acquire escape learning more readily than avoidance learning and a history of escape from an aversive stimulus may be a prerequisite for avoidance learning [7, 9]. One account of avoidance learning in effect redefines avoidance as actually always being escape learning [7, 8]. Most of the debate has involved the question of how the prevention or nonoccurrence of an event can function as a reinforcer for avoidance learning [5]. This question has been referred to as the "avoidance paradox," [7].

The differing accounts of avoidance learning are referred to as Two-Factor Theory [8], One-Factor Theory [6], and a Cognitive Theory of Avoidance [10]. Two-factor theory is so titled because it is based on the assumption that two conditioning processes, classical conditioning and operant conditioning, are necessary for avoidance learning [7]. To illustrate the roles for the two processes, a description of Solomon and Wynne [14] is often cited. Solomon and Wynne used dogs as research subjects in a shuttle box, a rectangular enclosure divided down the middle by a barrier the subjects could leap over to cross from one side of the shuttle box to the other. Each side of the shuttle box had an overhead light as well as a metal grid floor through which shock could be delivered. Every few minutes, the overhead light in the compartment where the dog was located would be turned off while the light in the other compartment remained on. Ten seconds after the overhead light was extinguished, an electric shock was presented to the floor of the darkened compartment; the subjects could escape the shock by jumping over the barrier and for the first few occurrences of shock delivery, the subjects engaged in escape responding. After several repetitions, the subjects learned to jump over the barrier within a few seconds after the offset of the light to avoid the scheduled shock via an avoidance response and once this pattern of responding was acquired, most of the subjects never again experienced any shocks [7, 14].

To explain these findings in terms of the two factors, an unconditioned response to electric shock is fear, and through the pairing of classical conditioning, this elicited fear is transferred from the unconditioned stimulus of the shock to the darkness as a conditioned stimulus. Establishing a fear-eliciting conditioned stimulus via classical conditioning, in the case of Solomon and Wynne, darkness, is the first process of this theory. The second factor, operant conditioning, comes into play when the subjects engage in escape in the presence of the fear-producing CS and two-factor theory sees avoidance learning as actually being escape learning [7].

Several questions arise for proponents of two-factor theory. (1) Subjects can acquire avoidance learning in the absence of any discernible CS. While avoidance learning as conducted by Solomon and Wynne included an event that preceded the aversive stimulus, avoidance learning is acquired in the absence of any such "warning signal" or CS. This avoidance learning is referred to as non-discriminated avoidance, Sidman avoidance, or free-operant avoidance [9, 11]. (2) Subjects engage in avoidance learning in the absence of any observable signs of fear. (3) Any trial in which the shock US is not experienced is an extinction trial for the fear-eliciting CS; as a result, the CS will eventually no longer elicit fear and avoidance responding should become less frequent or cease. Two-factor theorists argue that subjects will have to experience shocks again for the CS to be re-established as a fear-eliciting event such that avoidance learning would be acquired, weaken and be re-acquired in a cyclical fashion. Unfortunately for the advocates of two-factor theory, such a cyclical pattern of behavior is rarely if ever observed and avoidance learning fails to undergo the extinction predicted as expected by two-factor theory [7]. The proponents of two-factor theory retort that the necessary fear is still present but is strictly an internal response and that the passage of time alone between scheduled shocks can serve as a fear-eliciting CS [3].

The questions raised concerning two-factor theory, particularly the lack or the slowness of extinction of the learned-avoidance response opened the door for alternative explanations of avoidance learning such as one-factor theory. One-factor theory has the appeal of being a simpler account and it is based solely on operant conditioning [7]. Initially Sidman [11] showed that rats could acquire avoidance learning in the absence of any obvious CS; in his experiment, if rats did not respond via a lever press, shocks were delivered every 30 s, but if an animal made a lever press, shocks were delayed by 30 s. Responding occasionally but regularly, once every 15–25 s or thereabouts would let a rat avoid all shock. While no rat did avoid all of the shocks completely, Sidman's rats did acquire avoidance learning responses that allowed them to avoid the majority of the scheduled shocks [7, 11]. One obvious question for the results of Sidman [11] is that the shocks were a regularly occurring aversive stimulus and that the passage of time since the last shock could be serving as a CS to elicit fear; as a result, results of studies like Sidman [11] were not a conclusive end to two-factor theory [7].

To more definitively challenge two-factor theory, Herrnstein and Hineline [6] performed a study in which electric shocks occurred but which were not a regularly

programmed and predictable consequence. In this study, rats were shocked according to a probability contingency in that at the end of every 2 s, a shock would be delivered according to different probabilities. If a rat did not emit a lever press, the probability of a shock had a p. of 0.3 in the next 2 s. If a rat did emit an operant response of lever pressing, the p. of a shock in the next 2 s was reduced to 0.1. Here, there were no predictable or consistent shock-free periods; the occurrences of shock inevitably followed some responses. Nevertheless, approximately 90% of the rats in this study acquired avoidance learning. Herrnstein & Hineline [6] concluded (1) animals could learn an avoidance response with neither a discernible, external CS nor the passage of time as a reliable predictor of shock, and (2) a reduction in the overall frequency of shock was sufficient for the acquisition of avoidance learning [6, 7].

How does one-factor theory account for the hindered extinction of the avoidance response? The progress of extinction of any operant is slower following intermittent reinforcement relative to behavior that had been maintained by continuous reinforcement or fixed schedules of reinforcement [9]. This partial-reinforcement effect is argued to be due to the difficulty the organism has in discriminating the change from variable reinforcement to extinction relative to the change in conditions from fixed reinforcement to extinction [7, 9]. In the Herrnstein & Hineline study, the responding of the subjects was on a highly variable schedule of negative reinforcement. Predictably, such a schedule would produce a slowed extinction of the operant [7].

It needs to be emphasized that the nature of the operant response has bearing on the likelihood that avoidance learning will be acquired. If an operant reinforced with a escape or avoidance contingency is compatible with an organism's innate responses to a threatening, aversive stimulus, the acquisition of avoidance learning will progress much more rapidly than if the response is incompatible with the organism's innate defensive responses [2]. Bolles argued that animals are born equipped with innate behaviors that serve to protect and defend the organism from predation; these innate responses were termed species-specific defensive responses (SSDRs) by Bolles and such SSDRs were elicited by a pain producing US such as electric shock [2]. As a result, an organism's SSDRs have to be considered as a variable in avoidance learning [2, 3].

The arguments of Bolles [2] seemed to raise questions that a purely operant account of avoidance learning was overlooking variables that had to be considered to explain avoidance learning [3]. This led to the proposal of a cognitive theory of avoidance learning by Seligman and Johnston [10]; this theory introduced the concept of "expectations" or "expectancies" as mental events occurring inside animals that were proposed as being variables needed to account for avoidance [3, 4, 10].

To account for avoidance learning, Seligman and Johnston argued that two important expectancies form in a situation calling for avoidance. (1) An expectancy is formed regarding the consequences of a response, and (2) another expectancy is formed concerning the consequences of no response occurring. During the course of acquiring avoidance learning, the animal gradually forms the expectancy that (1) no shock will occur if a response takes place, and (2) a shock will occur in the absence of a response. Since the second outcome is preferable to the first, the organism engages in avoidance [7, 10]). Once these expectancies are in place, these researchers argue that the animal's behavior will remain constant until the expectancies are breached; extinction is slow because responding avoids shock and the expectancies are upheld. The expectancies lead the animal to continue to engage in avoidance [3].

Seligman and Johnston [10] were only the first in a series of cognitive theories of avoidance learning [3] and the concepts of such theories are agreeable to cognitive theorists. Critics and skeptics raise questions about the reality of unobservable concepts such as expectancies and expectations. Concepts such as these are necessarily circular [15]. The presence of unobservable entities such as expectancies is inferred from behavior, yet the same concepts are then used to explain the behavior in question. If behavior changes, it is inferred that the expectancies changed and the change in expectancies produced the behavior change. The expectancies, however, can never be observed independent of behavior, are uneconomical and circular, and inspire skepticism regarding their reality [1, 12, 13, 15].

Has avoidance learning been unequivocally explained? Probably not, since one-factor theory is still the accepted account by operant theorists but considered inadequate by cognitive theorists [3, 7]. Most of the two-factor theory proponents are now largely cognitive [4]. The concepts of cognitive theorists are critiqued by operant theorists [9] and delegated to the status of "explanatory fictions" [12, 13, 15]. This type of debate is the current state of much of psychology.

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Avoidance Responding

►Avoidance Learning

Avoidant Attachment

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Synonyms

Insecure attachment

Definition

Avoidant attachment is a form of insecure attachment between young children and their caregiver.

Description

To assess the quality of attachment between mothers and infants, Mary Ainsworth developed a standardized process called the Strange Situation Procedure. In this procedure, both the infants and their mothers were brought into a room filled with toys where infants were given the opportunity to explore. In a series of eight situations, the infants were separated from their mother twice, reunited with their mother twice, and also encountered a stranger. Based on the infants' behavior during these eight situations, the infants were classified as either secure, avoidant, resistant, or disorganized [1, 5].

Those infants that were classified as avoidant demonstrated little anxiety upon separation from their mother. Instead, these infants actively avoided, ignored, and resisted interaction with their mother. Upon reunion with their mother, these infants appeared indifferent [1, 5].

Avoidant attachment can develop from two different types of care giving. In the first pattern of care giving, mothers tend to be unresponsive and rejecting towards their infants during times of distress. In the other case, mothers are overzealous. These mothers tend to overwhelm the infant with too much stimulation, which the infant may find discomforting. As a result, they may withdraw from their caregiver's affection [1, 5].

Relevance to Childhood Development

The bond between the infant and their primary caregiver provides the foundation for social development and the manner in which they establish relationships. Infants with insecure attachments are more likely to have social problems than those with secure attachments. They are more likely to be mistrustful and may avoid close relationships with others. Avoidant attachment has been associated with schizoid, narcissism, and obsessional problems later in life [2–4].

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Axon

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Synonyms

Nerve fibre; White matter

Definition

An axon is the part of a neuron that carries messages destined for other cells.

Description

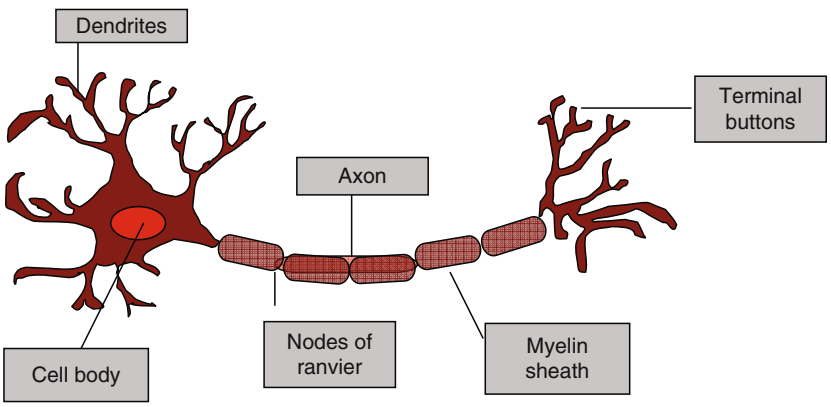
An axon is a long tube like extension coming from the cell body or soma that conducts electrical pulses from the neuron to other cells. The axon is longer than the rest of the neuron. Most axons are just several millimeters long but some axons can extend a meter in length. Most axons are also insulated with a protective coating known as the myelin sheath. The myelin sheath is made up of specialized glial cells that wrap themselves around the axon. Schwann cells sheath the neurons of the peripheral nervous system and oligodendrocytes insulate the neurons of the central nervous system [4]. The majority of myelination is complete by 5 years of age but the process continues into the forth decade of life [2]. A myelinated axon has evenly spaced gaps known as nodes of Ranvier which enable rapid propagation of electrical impulses. Axons involved in the transmission of the most important electrical messages have the greatest concentration of myelin. For example, the information signaling pain is passed through axons with large quantities of myelin. Neurotransmitters are the chemicals stored in the terminal buttons at the end of the axon. The electrical impulse results in the release of the axon's neurotransmitters which can travel across the synapse to a receptor site on another neuron's dendrite. Figure 1 shows an axon in relation to the other main components of the neuron.

The white matter of the brain consists of the myelinated axons that are grouped into bundles (nerve fibers). The grey matter is made up of the neuron's cell body and dendrites. Figure 2 demonstrates that the bundles of axons (nerve fibers) make up a large proportion of the human brain.

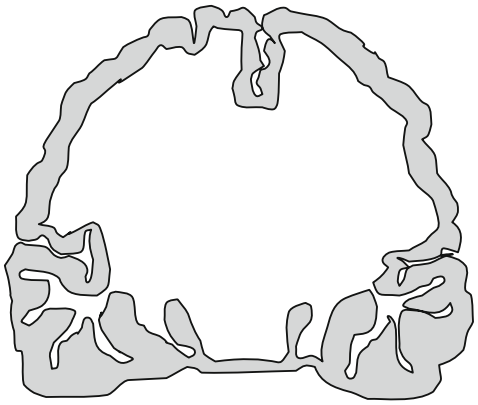
A number of diseases and disorders preferentially effect the white matter in the brain. Multiple Sclerosis (MS) is one of the most common [4]. In MS the myelin insulation around the axon has been destroyed. The amyloid plaques which are characteristic in Alzheimer's disease are known to effect white matter and atherosclerosis is likely to first occur in the tiny blood vessels that irrigate white matter.

Relevance to Childhood Development

The brain continues to develop throughout childhood and the volume of white matter increases linearly into adulthood [2]. The central nervous system is the most vulnerable human system to developmental injury. Children can suffer from a variety of diseases and disorders that effect the axon and specifically the myelin insulation of the



Axon. Fig. 1 The components of a neuron featuring the axon.



Axon. Fig. 2 A schematic picture of a coronal view of the brain depicting grey and white matter.

axon. These diseases are designated the leukodystrophies and include hereditary hypomyelinating diseases such as Pelizacus-Merzbacher disease and metabolic disorders such as Krabbe's disease and Caravan's disease [3]. Considerable research effort is being made to develop cell-based therapeutic strategies that can aid in the restoration of myelin. In addition, several environmental factors are known to interfere with the deposition of myelin. The most influential is malnutrition during the critical period between birth and 24 months of age. MS is increasingly recognised as a disease that effects children with some research suggesting that children may represent up to 10% of all MS cases [1]. As with adult-onset MS, children present with visual and sensory problems and often weakness and ataxia. Children, however, typically have fewer lesions (injuries) than adults, but are more likely to have monosymptomatic illnesses and this poses a difficulty with regard to accurate diagnosis.

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B

Babbling

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Synonyms
Gibberish; Twaddling

Definition
Babbling is a stage of infants' *prelinguistic* speech development that consists of repetitive consonant–vowel utterances.

Description
The verbal behavior of infants during the first year of life is termed the *prelinguistic period* because it does not contain actual words [3]. Common noises during early infancy include crying, cooing, and variations in patterns of intonation. Babbling typically follows the *cooing* stage of prelinguistic speech and usually emerges between three and six months of age [2]. Consisting of the production of consonant–vowel combinations, such as "ba" or "da," babbling serves as infants' primary means of noncrying vocal communication with caregivers during playtime and other neutral interactions. At approximately 7–9 months infants begin to repeat and draw out well-practiced sounds (e.g., "babababa," or "goo-goo," "gagagaga"), a phenomenon referred to as *canonical* or *reduplicated* babbling [1].

Relevance to Childhood Development
During the latter half of the first year of child development, babbling begins to vary not only in the combinations of sounds the infant utters but also in their patterns of intonations, and thus begins to vary in both pitch and intensity [3]. Furthermore, babbling is considered a universal pattern of development in humans as it is not restricted to the language of the culture in which a child is born [3]. Cross-culturally children begin babbling at about the same age. Children who are hearing impaired also babble, and produce sounds similar to those of hearing infants until around 5 or 6 months of age [2]. Infants exposed to American Sign Language begin to produce repetitive hand movements that resembles babbling [2]. It is estimated that every child babbles every sound in every language at least some time during the first year. Toward the end of the first year, babbling shortens to single or double repetitions such as "mama" and "dada" [1]. At this point, the sounds take on more characteristics of the language in which the infant lives.

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Babinski (or Babinsky) Phenomenon or Sign

▶Babinsky Response

Babinski Reflex

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Synonyms
Babinski's sign; Extensor Plantar reflex (pathological) toe phenomenon; Plantar reflex (non-pathological)

Definition
An infantile reflex where stroking the sole of the foot from the heel upward across the ball of the foot elicits the

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fanning and hyperextension of the toes. The Babinski reflex occurs when the large toe flexes toward the top portion of the foot while the remaining toes fan out. This reaction is normal among infants, but is considered a sign of brain or spinal cord damage if it occurs after the age of 2.

Description

The Babinski reflex is characterized by the hyperextension of the big toe and the fanning out of the other toes when the foot is stroked upward from the heel. The Babinski reflex is one of the infantile reflexes that disappear as the child's nervous system develops. In infants the Babinski reflex is considered normal [3, 7]. As the nervous system develops, the body should respond with a normal reflex movement termed the plantar reflex. In older children and adults, the Babinski reflex is the pathological response that indicates damage to the central nervous system [8]. More specifically this damage originates from the pyramidal system; the portion of the corticospinal tract on the ventral border of the medulla which is a collection of axons that travel between the motor cortex and the spinal cord [2]. Currently, there is no consensus on the specific age where the elicited response becomes pathological. Mandleco [6] states that this response should disappear at 1 year, Berk [1] gives a time span of 8 – 12 months, and Harrop, Hanna, Silva, and Sharan [4] state that the extensor response should give way to the flexor response between 12 – 18 months of age. After taking into consideration each child's individual maturation, the medical community generally views the response abnormal after the age of two [5].

In 1896, Joseph Francois Felix Babinski (1857–1932), a French neurologist, presented his observations of the toe phenomenon to the Biological Society of Paris where he delineated his observations of this reflex in a healthy and pathological response. In healthy adults, stroking the sole of the foot will result in a flexor response, where the toes curve inward. Individuals who have damage to the central nervous system will elicit an extensor response where the toes fan outward [10]. The Babinski reflex is frequently used in infant assessment and because of its reliability remains an important sign in clinical neurology [3] for adults. Because of its use in determining central nervous system damage, the Babinski reflex is indicative of a diverse range of disease processes. Damage to the spinal cord, a brain tumor along the corticospinal tract, meningitis, multiple sclerosis, stroke, rabies, amyotrophic lateral sclerosis, hepatic encephalopathy, and cerebral palsy are a portion of the diseases that may elicit a Babinski reflex [5, 6]. Individuals who exhibit a Babinski reflex will usually also show signs of weakness, incoordination, and difficulty with their muscle control [5]. Several methods need to be used to determine a specific diagnosis as stimulating the sole of the foot along its outside edge from heel to toe can evoke different reflex responses. There are now alternative stimuli that can be used to evoke the Babinski response such as flicking the fourth toe, squeezing the calf or Achilles tendon, and a downward scraping of the shin [9]. A physical examination by an individual's physician is necessary to determine an appropriate diagnosis. An MRI scan of the head and spine may be used for diagnostic testing along with angiography of the head, lumbar puncture and analysis of the cerebrospinal fluid, and somatosensory evoked potentials [5].

Relevance to Childhood Development

The Babinski reflex is a normal infantile reaction to the rubbing of the side of the foot. This reflex begins to fade when a child reaches 12–18 months. If it occurs past the age of two, it is considered a sign of neurological damage.

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Babinski's Sign

►Babinski Reflex

Babinsky Response

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Synonyms

Babinski (or Babinsky) phenomenon or sign; Babinski reflex; Extensor plantar response or extensor response; Toe or big-toe phenomenon or sign

Definition

The Babinsky response is a reflex where the hallux (or big toe) moves upward and the muscle extending the hallux contracts as the sole of the foot is stroked from the heel to the base of the toes [3]. While normal in infancy, the Babinsky response indicates a neurological disturbance if present in older children or adults [2].

Description

Joseph Felix Francis Babinski (1857–1932) is credited with discovering the Babinsky response [1, 4]. He first presented his findings to the Biological Society of Paris in 1896 and further described his findings in 1898 [1, 4]. The Babinsky response is a reflex occurring when the sole of the foot is stroked, causing the hallux to extend upward and the muscle extending the hallux (the extensor hallucis longus) to contract [3]. Fanning of the other toes may or may not occur and is not a criterion for the Babinsky response. When performing an examination to determine whether the Babinsky response is present, a physician first ensures that the patient is lying down with the face up and all of the leg muscles visible [3, 5]. Then, he or she uses an instrument (e.g., a thin wooden stick) to stimulate the sole of the foot from the heel to the base of the toes. Sometimes it can be difficult to determine whether an upward movement of the toe is a legitimate Babinsky response; therefore, one also examines whether the muscle extending the hallux is contracting, whether additional flexor muscles are contracting, and whether the upward movement of the toe is reproducible [3, 5].

The Babinsky response is considered normal in the first year of life because during this time the pyramidal system within the central nervous system is still developing [3]. Older children and adults generally show a flexor plantar response upon stimulation of the sole of the foot, where the hallux moves downward [5]. Absence of the flexor plantar response is not a concern unless the absence is asymmetrical [5]. If present in older children and adults, a Babinsky response can indicate neurological disturbance, specifically in the pyramidal system [1, 2]. A unilateral Babinsky response can indicate a disturbance in one side of the central nervous system. Hence, the Babinsky response is a clinically useful sign for indicating neurological disturbances in older children and adults and its presence almost always signifies abnormalities of the central nervous system [2].

Relevance to Childhood Development

The Babinsky response is considered one of the primitive reflexes in infancy and generally fades between 6 and 12-months as infants' central nervous systems develop [4]. Fanning of the other toes may or may not occur. While considered normal, the types of responses elicited in newborns in research studies have varied from extensor, to flexor, to equivocal, depending on the methodology or technique used [2]. Children and adolescents typically show a flexor plantar response, where the hallux goes downward upon stimulation of the sole of the foot [5]. If the Babinsky response persists beyond age two or reappears in childhood or adolescence, it may suggest neurological damage or dysfunction [2].

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Baby

►Infancy

Baby Talk

Synonyms
Child-directed speech

Definition
Talking in a high pitch using words, sounds, or songs to an infant, animal or lover.

Description
Having a communicative interaction with a child, or infant that is soft, loving, high-pitched sounds or words.

Relevance to Childhood Development
These cooing, babbling, help the infant to imitating the voices in which they are exposed. Baby talk is important for children to learn the different sounds to help the infant to begin to use language. When babies are about 6–8 weeks they begin to make sounds. Copying those sounds back to the baby helps with the infant's social responsiveness. The cooing sounds are also the foundation for communication. These kinds of sounds help with the infant's acquisition of language.

Infants whose caretakers do not use this type of communication, the child may have delayed speech. This may happen because the infant responds more to the person who talks baby talk because of the high pitch and the softness of the sounds.

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Babyhood

►Infancy

Bad Dreams

►Nightmares

BADDS

►Brown Attention-Deficit Disorder Scales

Baer, Donald M.

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Life Dates
1931–2002

Educational Information
Dr. Baer was a renowned researcher and professor in basic, applied, and developmental approaches to behavioral psychology, who contributed significantly to the areas of early childhood education intervention research, interventions for individuals with developmental and intellectual disabilities, language development, imitation, and bridging the gap between behavioral and developmental psychology.

Dr. Baer began his educational career in the public school systems of Massachusetts and Pennsylvania, which he credited for opening his eyes to the merits of science [2]. Dr. Baer completed his baccalaureate studies at the University of Chicago, where he earned his A.B. with honors in 1950. Dr. Baer earned his doctorate in 1957 in the area of experimental psychology under the direction of Jacob L. Gewirtz at Florida International University. Utilizing his expertise in experimentation, Dr. Baer – along with his colleagues Drs. Sidney W. Bijou, Todd R. Risley, and Montrose M. Wolf – would go on to translate Skinner's experimental analysis of behavior to socially valid problems in applied settings. This work was paramount in the conceptualization and formulation of the field of applied behavior analysis.

Accomplishments
Dr. Baer received many awards during his lifetime, with the most notable awards being the Don Hake Award from Division 25 (Behavior Analysis) of the American Psychological Association (APA) in 1987, the Edgar A. Doll Award from Division 33 (Intellectual and Developmental Disabilities) of the APA in 1996, and the Society for the Advancement of Behavior Analysis's 1997 award for Distinguished Service to Behavior Analysis [1]. Dr. Baer was

recognized by the University of Kansas by being named a Roy A. Roberts Distinguished Professor of Human Development and Family Life and of Psychology.

Contributions

Throughout his career, Dr. Baer mentored over 150 graduate students – many of whom have gone on to become leaders in child behavior, education and special education, and behavior analysis [3]. In addition to Dr. Baer's legacy as an esteemed mentor, he contributed to the fields of psychology and education through the publication of more than 200 professional works, ranging from peer-reviewed articles to books and book chapters [3]. Dr. Baer's service to the field also included tenure as the president of the Society for the Experimental Analysis of Behavior from 1983 to 1984, president of the Association of Behavior Analysis from 1980 to 1981, and editor of *Journal of Applied Behavior Analysis* from 1970 to 1971.

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Baldwin, James Mark

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Life Dates

1861–1934

Introduction

James Mark Baldwin was a prominent American psychologist in the late-nineteenth and early twentieth centuries. In 1903, 6 years after he served as president of the American Psychological Association, a survey of American psychologists ranked Baldwin as the fifth most influential psychologist of the time [4–6].

Educational Information

Baldwin received his undergraduate and graduate degrees at what would eventually become Princeton University. There he studied with the school's president James McCosh, a Scottish realist philosopher, Presbyterian minister, and early supporter of evolution. Baldwin's educational experiences also included a year abroad during which he spent time in Wilhelm Wundt's Leipzig lab [8, 9, 12].

Accomplishments

Baldwin was one of the first psychologists to systematically study child development. His observations of children began after the birth of his first child and convinced him that thought and reason were capacities of the human mind that develop over an individual's lifetime [12]. This led Baldwin to draw a parallel between the mental development of child and that of the species [1].

The theory of child development proposed by Baldwin encompasses both social and cognitive domains and emphasizes the child's active role in the development of the self [11]. Baldwin's stage-wise theory of mental development is composed of three stages: projective, subjective, and ejective. In the projective stage the child recognizes differences in others. In the subjective stage the child develops agency and a sense self. Finally, in the ejective stage the child begins to think of others as subjects similar to the self [1, 3, 7]. Important to Baldwin's developmental theory is the concept of imitation through which the child progresses through these stages of development. It is also imitation that allows for the development of intelligence. In Baldwin's view imitation is the deviation from instinct that results in novel experiences and subsequent intellectual growth [7]. Baldwin would also go on to propose a four stage theory of the development of knowledge comprising pre-logical, logical, quasi-logical, and hyper-logical stages [2, 5, 7].

Contributions

Although largely forgotten by psychology today, James Mark Baldwin played an important role in the formation of the discipline of psychology. Baldwin founded psychological laboratories at the University of Toronto and Princeton University, and also reestablished the laboratory at Johns Hopkins University [4, 6]. Additionally, Baldwin co-founded the *Psychological Review* and the *Psychological Bulletin* [4, 10]. Baldwin's important developmental books include, *Mental Development in the Child and the Race* (1895) and its companion, *Social and Ethical Interpretation in Mental Development* (1897). In addition to his work on child development, Baldwin conducted work in the nascent fields of social psychology, evolutionary psychology, and evolutionary epistemology.

Baldwin also established the field of genetic epistemology, or the developmental theory of knowledge, which the developmentalist Jean Piaget would take up later in the

twentieth century. Through Baldwin's contact with French psychologist Pierre Janet both Jean Piaget and Lev Vygotsky would come to know of Baldwin's work [6, 11, 12]. Baldwin's terminology, including circular reaction, plasticity, imitation, accommodation, and assimilation, would figure prominently in Piaget's work [7].

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Balls

►Gonads

Bandura, Albert

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Life Dates

1925–Present

Introduction

Albert Bandura is an internationally renowned psychologist whose social cognitive theory has revolutionized the study of psychology and has had a profound impact in areas such as education, medicine, business, sports and athletics, economics, political science, media, and mass communication. His introduction of the psychological construct of *self-efficacy* is widely acknowledged as one of the most important developments in the history of psychology. As regards child behavior and development, it is not possible to explain phenomena such as motivation, learning, self-regulation, and academic achievement without discussing the role played by self-efficacy beliefs.

Educational Information

Albert Bandura was born in Mundare, Alberta, Canada. His elementary and high school years were spent at the only school in town, which was woefully short both on resources and teachers. The school contained eight classrooms for grades 1–12, and two teachers handled the entire high school curriculum. Bandura obtained his undergraduate degree in psychology at the University of British Columbia in 1949, where he graduated with the Bolocan Award. He obtained a doctoral degree in clinical psychology from the University of Iowa in 1952 under the direction of adviser Art Benton and went on to a postdoctoral internship at the Wichita Guidance Center.

Accomplishments

Bandura has authored seven books and edited two others, and he has published over 230 articles and book chapters. His books have been translated in numerous languages, including Spanish, Italian, Portuguese, French, Polish, German, Russian, Chinese, Japanese, and Korean.

His contributions to psychology have been recognized in the many honors and awards he has received. These include the *William James Award* of the American Psychological Society for outstanding achievements in psychological science, the *Thorndike Award for Distinguished Contributions of Psychology to Education* from the APA, the *Outstanding Lifetime Contribution to Psychology Award* from the American Psychological Association, the *Distinguished Lifetime Achievement Award for Advancement of Health Promotion through Health Promotion Research* from the American Academy of Health Behavior, the *Distinguished Contribution Award* from the International Society for Research in Aggression, the *Distinguished Scientist Award* of the Society of Behavioral Medicine, and the *Gold Medal Award for Distinguished Lifetime Contribution to Psychological Science* from the American Psychological Foundation. In 2007 he received the *Everett M. Rogers*

Award in Entertainment-Education, an award that honors exceptional creativity in the practice of entertainment-education and excellence in research on the use of entertainment to deliver pro-social messages aimed at improving the quality of life of audiences in the United States and abroad. In 2008, he was awarded the prestigious *Grawemeyer Award* for his contributions to psychology.

Bandura was elected to the presidencies of the APA in 1974 and of the Western Psychological Association in 1981, and he was appointed Honorary President of the Canadian Psychological Association. He has been elected to the American Academy of Arts and Sciences and to the Institute of Medicine of the National Academy of Sciences.

Contribution

Bandura joined the faculty of the Department of Psychology at Stanford University in 1953. When he arrived on campus, the renowned psychologist Robert Sears was chair of the department. Influenced by Sears' work on familial antecedents of social behavior and identificatory learning, Bandura's initial research centered on the role of social modeling in human motivation, thought, and action. In collaboration with Richard Walters, his first doctoral student, Bandura began to engage in field studies of social learning and aggression. Their joint efforts illustrated the critical role of modeling in human behavior and led to a program of research into the determinants and mechanisms of observational learning (part of which is known in the history of psychology as the "Bobo Doll studies."). The program also led to Bandura's first book, *Adolescent Aggression*, and to a subsequent book, *Aggression: A Social Learning Analysis.*

Having gained a better sense of how people learn by observation, Bandura extended this work to abstract modeling of rule-governed behavior and to disinhibition through vicarious experience. Again with Richard Walters, in 1963 Bandura published his second book, *Social Learning and Personality Development.* In 1974, he became David Starr Jordan Professor of Social Science in Psychology. In 1977, Bandura published the ambitious *Social Learning Theory*, a book that dramatically altered the direction psychology was to take in the 1980s. The growth of interest in social learning and psychological modeling that took place during the last decade of the twentieth century owes much to Bandura's theoretical analyses of this phenomenon.

During his time at Stanford, Bandura collaborated in and developed joint projects with internationally renowned scholars such as Jack Barchas and Barr Taylor in psychiatry, Robert DeBusk in cardiology, and Halsted Holman in internal medicine. One of these projects studied how people's perceptions of their own ability to control what they viewed as threats to themselves influence the release of neurotransmitters and stress-related hormones into the bloodstream. A major finding that resulted from these studies was that people can regulate their level of physiological activation through their belief in their own capabilities to do so, or their *self-efficacy* beliefs.

In the course of investigating the processes by which modeling alleviates phobic disorders in snake phobics, Bandura again found that changes in behavior and fear arousal were mediated largely through the self-beliefs that the phobic individuals had in their own capabilities to alleviate their phobia. Bandura then launched a major program of research examining the influential role of self-referent thought in psychological functioning. Although he continued to explore and write on theoretical problems relating to myriad topicsC including observational learning, self-regulation, aggression, psychotherapeutic change, and moral disengagementC from the late 1970s a major share of his attention was devoted to exploring the role that self-efficacy beliefs play in human functioning.

By the mid-1980s Bandura had developed a *social cognitive theory* of human functioning that accords a central role to cognitive, vicarious, self-regulatory and self-reflective processes in human adaptation and change. This theory is rooted in an agentic perspective that views people as self-organizing, proactive, self-reflecting and self-regulating, not just as reactive organisms shaped by environmental forces or driven by inner impulses. In Bandura's social cognitive theory, human functioning is seen as the product of a dynamic interplay among personal, behavioral, and environmental influences. In this model of triadic reciprocal causation, people are producers as well as products of their environment. His 1986 book, *Social Foundations of Thought and Action: A Social Cognitive Theory*, provided the conceptual framework and analyzed the large body of knowledge bearing on this theory.

Emphasizing that human lives are not lived in isolationCthat people work together on shared beliefs about their capabilities and common aspirations to better their livesCBandura expanded the conception of human agency to include collective agency. This conceptual extension makes the theory applicable to human adaptation and change in collectivistically oriented societies as well as individualistically-oriented ones. In his 1997 book, *Self-Efficacy: The Exercise of Control*, Bandura set forth the tenets of his theory of self-efficacy and its applications to

fields as diverse as life-course development, education, health, psychopathology, athletics, business, and international affairs.

With social cognitive theory, Bandura has created one of the few "grand theories" that continues to thrive at the beginning of the twenty-first century. He has defied the general trend in psychology and education toward mini-models by focusing on processes that are influential in diverse areas of human functioning, be they education, sports, health, organizational settings, medicine, mental health, and social political spheres. The broad scope of Bandura's theory stems from his diverse scientific interests, and his theory's ready applicability. Social modeling, self-enabling beliefs, and self-regulation are pervasive across contexts and domains of human functioning.

As the new century dawned, Bandura broadened the scope of his thinking to expound a social cognitive theory capable of encompassing the critical issues and problems of the new millennium. He has spoken and written on topics as diverse as escaping homelessness, how environmental sustainability can be aided by sociocognitive deceleration of population growth, and how self-efficacy can be cultivated for personal and organizational effectiveness. He has proposed a social cognitive view of mass communication, explained the self-regulatory mechanisms governing transgressive behavior, and shown how perceived social inefficacy help lead to childhood depression and substance abuse. Exploring the moral disengagement in the perpetration of inhumanities, Bandura outlined the psychosocial tactics by which individuals and societies selectively disengage moral self-sanctions from inhumane conduct and called for "a civilized life" in which humane standards are buttressed "by safeguards built into social systems that uphold compassionate behavior and renounce cruelty."

Current Involvements

Bandura continues to research and teach at Stanford University, and he still travels a world eager to convey on him numerous measures of recognition and respect for his accomplishments. In addition to social cognitive theory and self-efficacy, his current writing focuses on moral disengagement, terrorism, media effects and mass communication, the psychology of environmental harm, and ecological sustainability.

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Barbiturates

▶Depressants

Barbs

▶Depressants

Barf

▶Purging

Barkley Home Situations Questionnaire

Synonyms

Home Situations Questionnaire; HSQ

Definition

Developed by Dr. Russell Barkley, the Home Situations Questionnaires is designed specifically to gather information from parents about behaviors and symptoms directly associated with Attention Deficit Hyperactivity Disorder.

Parents complete the Home Situations Questionnaire by evaluating various symptoms of ADHD and how they disrupt the children in normal home situations such as meal time or completing chores. Parents determine if there were problems in 16 different areas and then rate those problems on a scale of 1-9. This rating scale, along with others, is used to help determine the correct diagnosis for a child. The scale was developed by Russell Barkley, Ph.D. in the early 1990's and is widely used in the assessment and diagnosis of children with symptoms associated with ADHD. There have been numerous psychometric studies conducted on the HSQ and its utility in the assessment of attention-deficit hyperactivity disorder and related behavior disorders in which attention problems are an important focus of evaluation (DuPaul, 1992). Copies of the HSQ can be found in Attention Deficit Hyperactivity Disorder Third Edition A Clinical Workbook (Barkley, 1998).

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Barkley School Situations Questionnaire

Synonyms

School Situations Questionnaire; SSQ

Definition

Developed by Dr. Russell Barkley, the School Situations Questionnaire (SSQ) is designed specifically to gather information from teachers about behaviors and symptoms directly associated with Attention Deficit Hyperactivity Disorder that may displayed in a classroom setting. This instrument, in combination with the Home Situations Questionnaire was developed to assess the severity and cross-situational pervasiveness of attention problems, particularly in the classroom.

Teachers complete the School Situations Questionnaire by evaluating various symptoms of ADHD and disruptive behaviors and how they disrupt the children in classroom situations such as individual seat work or lecture activities. Teachers determine if there were problems in a number of different areas and then rate those problems on a scale of 1-9. This rating scale, along with others, is used to help determine the correct diagnosis for a child. The scale was developed by Russell Barkley, Ph.D. in the early 1990's and is widely used in the assessment and diagnosis of children with symptoms associated with ADHD. There have been numerous psychometric studies conducted on the SSQ and its utility in the assessment of attention-deficit hyperactivity disorder and related behavior disorders in which attention problems are an important focus of evaluation (DuPaul, 1992). Copies of the HSQ can be found in Attention Deficit Hyperactivity Disorder Third Edition: a Clinical Workbook (Barkley, 1998)

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Barkley, Russell A.

Eva Benmeleh
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Life Dates

1949–Present

Educational Information

Dr. Russell A. Barkley, Ph.D., is an internationally recognized clinical psychologist and one of the most recognized researchers in the area of Attention Deficit Hyperactivity Disorder (ADHD). Over the past 30 years, Dr. Barkley has dedicated his research to the assessment and treatment of ADHD in children and adults [1].

Barkley obtained his Bachelor's Degree from the University of North Carolina at Chapel Hill in 1973 [1]. He earned his Masters Degree in 1975 and his Ph.D. in 1977 in Clinical Psychology from Bowling Green State University in Ohio [1, 2]. Barkley completed pre-doctoral internship training at the Oregon Health Sciences University with an emphasis upon developmental, learning, and behavioral disorders in children [2]. In 1977, Barkley joined the Department of Neurology at the Medical College of Wisconsin and Milwaukee Children's Hospital where he founded the Neuropsychology Service and served as Chief Professor and Associate Professor of Neurology until 1985 [1, 2]. From 1985 to 2002, Barkley served as the Director of Psychology and as a Professor of Psychiatry and Neurology at the University of Massachusetts Medical School [1, 2]. There, he established the research clinics for both child and adult Attention Deficit Hyperactivity Disorder [1, 2]. In 2003, he moved to Medical University of South Carolina, where he served as a Professor in the Department of Psychiatry [1]. In 2005, he joined the faculty of the Department of Psychiatry at the SUNY Upstate Medical University in Syracuse, NY, where he is currently employed [1].

Accomplishments

Barkley holds a Diplomate in three specialties: Clinical Psychology (ABPP), Clinical Child and Adolescent

Psychology (ABCN), and Clinical Neuropsychology (ABPP) [1, 2].

Barkley has presented more than 600 invited workshops, public addresses, and scientific presentations worldwide [1]. He has appeared on numerous national television and radio programs throughout North America and internationally [1].

Some of Barkley's numerous awards include: the Distinguished Contribution Award (1994) from the American Association of Applied and Preventive Psychology, the C. Anderson Aldrich Award (1996) from the American Academy of Pediatrics, the Award for Distinguished Contribution to Research (1998) from the Section on Clinical Child Psychology of the American Psychological Association. Barkley received the Dissemination Award from the Society for a Science of Clinical Psychology (2002) of the American Psychological Association for his career- long efforts to educate the public and other professionals about ADHD. Barkley received an award for distinguished service to the profession of psychology from the American Board of Professional Psychology (2005) [1].

Contribution

Parent training in behavior management used with defiant children, training in problem-solving and communication skills in family therapy, classroom behavior modification, social skills training, self-control training, and special education services for ADHD in the schools are some of the many treatments refined by Dr. Barkley. He has also studied the efficacy of stimulant (methylphenidate and amphetamine and nonstimulant (atomoxetine) medications for the treatment of ADHD in children [1].

Dr. Barkley has authored, co-authored, or co-edited 15 books and clinical manuals now numbering 23 separate editions. Some of his most recent books include *ADHD in Adults: What the Science Says* (2008); *ADHD in Adults: Diagnosis and Management* (2007); *Your Defiant Teen (2008); Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment* (3rd ed., 2006), *Taking Charge of ADHD: The Complete Authoritative Guide for Parents* (2005, 3rd ed.), and *Assessment of Childhood Disorders* (2007) [1].

Dr. Barkley has published more than 230 scientific articles and book chapters in the area of ADHD and related disorders. In 1993, Dr. Barkley founded *The ADHD Report* (Guilford), a bimonthly newsletter for clinical professionals [1, 2]. Three out of seven of his professional videotapes on ADHD and defiant children have won the 1992 and 1994 Golden Apple Award from the National Education Association [1]. Dr. Barkley has served on the editorial boards of 11 scientific journals and as a reviewer for numerous others [1]. He was the President of the Section of Clinical Child Psychology - Division 12, American Psychological Association (1988), and was President of the International Society for Research in Child and Adolescent Psychopathology (1991) [1].

Current Involvement

Currently, Dr. Barkley is a Research Professor at the Department of Psychiatry at the SUNY Upstate Medical University in Syracuse, New York and a clinical professor of psychiatry at the Medical University of South Carolina [1].

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Barr-Shaver-Carr Syndrome

►XXXY Syndrome

Basal Ganglia

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Definition

A group of interconnected subcortical structures that are responsible for movement.

Description

The basal ganglia are a group of interconnected subcortical structures in the forebrain. Although the structures that are considered to be part of the basal ganglia vary, there is general agreement that they include the caudate nucleus, putamen (these two structures are often referred to as the striatum), globus pallidus (globus pallidus and putamen are sometimes referred to as the lenticular nucleus) and the nucleus accumbens [1]. Many authorities also include the substantia nigra, subthalamic nucleus and the amygdala as structures of the basal ganglia [1–4]. The ventral striatum, comprising the ventromedial caudate, ventral putamen, nucleus accumbens and olfactory

tubercle, is a term more recently used to describe parts of basal ganglia that are closer to limbic structures [4]. Traditionally, the basal ganglia have been considered to be involved primarily in movement, but it is now recognised that they also play a vital role in cognitive, behavioural, and psychiatric functions [1].

Deficits Associated with Basal Ganglia Dysfunction

Dysfunctions within the basal ganglia are implicated in a range of movement, psychiatric, and cognitive problems, often resembling deficits usually associated with lesions of the prefrontal cortex [5–12]. Recent reviews suggest different regions of the basal ganglia are associated with diverse range of functions. For example, the ventral regions of the basal ganglia are key in reward and reinforcement, the central regions with cognitive functions that include procedural learning, and working memory, while dorsolateral portions of the striatum control movement [4].

This general topography has been supported to some extent by clinical cases. Bhatia and Marsden [5] reviewed available literature and reported outcomes for 240 patients who had experienced focal lesions to different basal ganglia structures. Of the 240 patients, 111 had behavioural problems, including abulia (defined by the authors as apathy with loss of initiative and spontaneous thought and emotional responses), disinhibition, obsessive compulsive disorder, speech disorder and depression. Abulia was the most common behaviour disturbance, and 13% of the 240 patients had symptoms consistent with this disorder. The most frequent motor disorders included dyskinesia, Parkinsonism, changes in muscle tone (muscular rigidity) and resting tremor. Deficits varied depending on the position of the lesions experienced by the patients.

From clinical cases such as those described, it is possible to make some general assumptions about lesions in the basal ganglia. For example, the authors reported that lesions confined to the caudate rarely caused motor problems and were more likely to cause problems with behaviour, whereas lesions in the lenticular nuclei rarely caused behavioural problems, but were highly likely to cause motor problems.

Contemporary Model of the Basal Ganglia

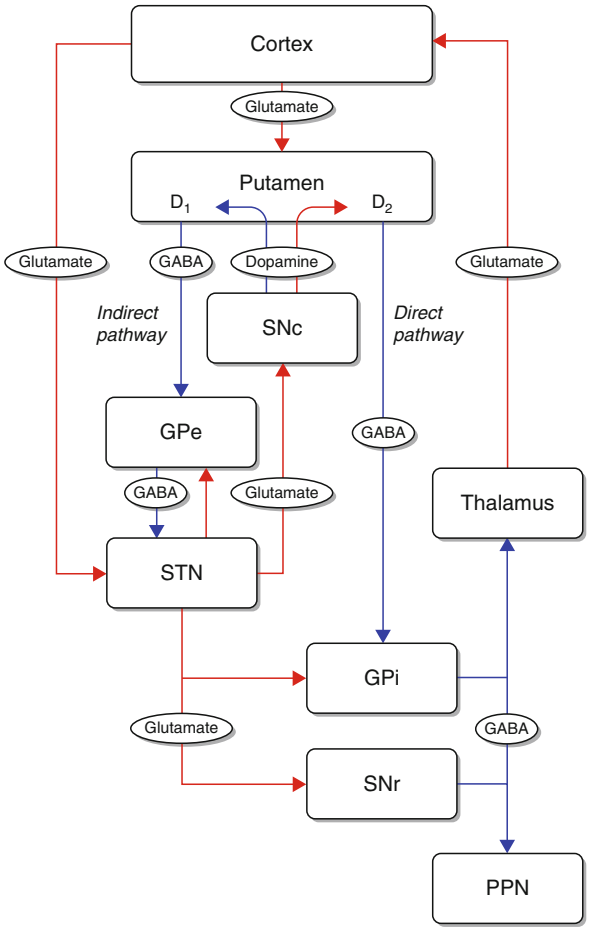
Because early theorists emphasised the role of the basal ganglia in motor functioning, its function was originally conceptualised as receiving information from diverse areas of the sensory and association cortices, and funnelling this information to the motor cortex. However, this view has been substantially revised over the past 20 years. One of the most influential models has been that suggested by Alexander and colleagues (1986; 1990). These authors propose that the basal ganglia are involved in at least 5 parallel loops with the cerebral cortex. Two of these loops are associated with the control of movement, and involve areas of the cerebral cortex associated with motor and oculomotor functioning. The remaining three loops are involved in cognition and behaviour, and include dorsolateral prefrontal, lateral orbitofrontal and the anterior cingulate regions of the cerebral cortex [13, 14]. Each basal ganglia-thalamocortical loop receives input from multiple functionally-related cortical areas and have been described as being closed, in that each receives input from and projects output to a specific cortical area [13, 15]. However, while each of the loops was conceptualised as segregated, they also receive inputs from, and output to, other structures [4, 13, 15]. Since its original inception, the model has been developed to include both direct and indirect pathways [16].

The motor circuit is most commonly used to facilitate an understanding of how the basal ganglia function (see Fig. 1). The direct pathway, which comprises mainly D1-type receptors, projects to the main output nuclei of the basal ganglia, the globus pallidus interna (GPi) and the substantia nigra pars reticulata (SNr). The GPi/SNr inhibits targets in thalamus and brain stem, with an excitatory effect on thalamo-cortical projection [2]. The indirect pathway, which comprises mainly D2- type receptors, projects primarily to the external segment of the globus pallidus (GPe), which outputs to the subthalamic nucleus (STN). Output from the STN to the GPi/SNr is excitatory, with an inhibitory effect on the thalamo-cortical projection [2, 17]. When functioning effectively, the two pathways work in unison to create a balanced system. More recently, a number of deviations to the classic basal ganglia model have been suggested, including projections to the pendunculo-pontine nucleus and the spinal cord [18].

The direct pathway, represented by the blue lines, projects to the globus pallidus interna (GPi) and the substantia nigra pars reticulata (SNr). The GPi/SNr inhibits targets in thalamus and brain stem with an excitatory effect on thalamo-cortical projection. The indirect pathway represented by the red lines, projects primarily to the external segment of the globus pallidus (GPe) which outputs to the subthalamic nucleus (STN). Output from the STN to the GPi/SNr is excitatory, with an inhibitory effect on the thalamo-cortical projection [Adapted from 17, 19].

Limitations of the Model

While this model has provided a useful framework from which to conceptualise the basal ganglia and associated



Basal Ganglia. Fig. 1 A schematic representation of the basal ganglia using the motor circuit.

disorders, it is important to be aware of some of the model's limitations (see Hauber, 1998 and Saint-Cyr, 2003 for comprehensive reviews). For example, it is clear that a degree of information integration occurs within the basal ganglia, given that the multiple related cortical areas project to a given sub-region of the striatum, and input structures (striatum) comprise of approximately 30 times more neurons than the output structures (SNr, and the GPi, Hauber, [20]). However, the current model lacks explanatory value in terms of how this information is integrated [21].

Further, a number of more recent findings are not easily explained by the model. For example, D1 and D2 neurons have been found to "co-localize" on striatal neurons and all striatal neurons that project to the GPi also project to the GPe. Therefore, the conceptualisation of the D1 /D2 neurons in the basal ganglia as being either excitatory or inhibitory is considered to be an over-simplification [22].

Other aspects of the original model remain a matter of debate, including the extent to which the loops are segregated, whether there is functional overlap, and whether there are additional basal ganglia-thalamocortical loops [21, 23–25]. Major regions of the cortex project to overlapping areas of the striatum, suggesting that the circuits are not totally segregated on the basis of cortical input [21]. Also, there are projections back to the cortex from the GPe and projections from the basal ganglia to the brain stem. However, the role of these open circuits is not adequately explained by the model [18, 26]. Despite the limitations covered above, anatomical observations and clinical studies have provided wide support for the model suggested by Alexander and colleagues, and it has been used to inform both research and surgical interventions [15, 27].

Relevance to Childhood Development

As outlined above the basal ganglia include a number of subcortical structures that are involved in the control of movement. Broadly speaking a disorder of the basal ganglia can either lead to an excess or retardation of movement and a number of these disorders may manifest in childhood. Some of the more common disorders include, Cerebral palsy, Tourette's syndrome, Obsessive Compulsive Disorder (OCD), Attention Deficit Disorder (ADD), Huntington's disease and Wilson's disease[28]. Each of these disorders is briefly described below in terms of the motor symptoms that may accompany them.

Cerebral palsy is a term used to describe a group of disorders affecting multiple aspects of movement. The disorder may result in muscular rigidity (stiffness), chorea (unwanted jerking movements), athetosis (slow, writhing movements), or dystonia (fixed, twisted postures)[28]. Overactive of the caudate has been implicated in disorders such as OCD[29], defined as recurrent obsessions or compulsions by the DSM-IV, while an under activation of the caudate may be involved in Attention Deficit Disorder ADD[28]. Under activation of the putamen, has been implicated in Tourette's syndrome. Tourette's syndrome involves involuntary muscle movements known as tics these may manifest motorically or vocally. Although less common in children, Huntington's disease is another disorder of the basal ganglia that may make its first appearance in early childhood. Huntington's, a hereditary disease involves cell death in the caudate nucleus, and is associated with deficits in cognition and movement (most notably chorea). Wilson's disease is a rare inherited disorder which causes the body to take in and keep too much copper, which causes damage to tissue in the body and brain structures. Many individuals with Wilson's disease will

demonstrate clumsiness, and in time symptoms consistent with parkinsonism (increased rigidity, slowness of movement). Disorders such as Cerebral palsy, Huntington's disease and Wilson's disease are often accompanied by other neuropsychiatric and cognitive disorders and in extreme cases are associated with intellectual disability [28, 29].

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Basal Ganglion

►Amygdala

Base Rate

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Synonyms

Norm rate

Definition

A base rate is a frequency or likelihood of an event occurring without intervention.

Description

Base rates are a statistic used to describe the percentage of a population that demonstrates some characteristic. Base

rates indicate probability based on the absence of other information. Base rates developed out of Bayes' Theorem.

An example of a base rate would be a professor who teaches a 7:30 a.m. statistics class. On a typical class day, approximately 25% of the class is not in attendance. The base rate for students who do not attend class is therefore 25%, and the base rate for students who do attend class is 75%. Thus the chance that any given student name listed on the roster will represent a student will be in attendance is 75%. It is important to remember that this statistic is made without any other given information other than the history of attendance.

In contrast, if you know that a particular student is a statistics major with a 4.0 grade point average, you are likely to conclude the chances of this particular student being in attendance is greater than 75%. These types of conclusions are of particular interest to psychologists. These decisions are known as "base rate neglect" or the "base rate fallacy [1, 2, 3]." In these cases, people tend to ignore base rate evidence in favor of other decision making modes [2]. Psychologists will often consider the base rates of disorders along with case-specific information when making diagnostic decisions, but also will engage in base rate neglect. Interestingly, base rate neglect has also been found to be accentuated in groups, and may be affected by the presentation of a problem [4]. Some researchers have presented models for why base rate neglect occurs; however, the origin of base rate neglect is still highly debated in the literature [2, 5].

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Bashfulness

►Shy Children

Basic Number Facts

►Arithmetic

Battelle Developmental Inventory: 2nd Edition

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Synonyms

BDI-2

Definition

The Battelle Developmental Inventory, 2nd Edition (BDI-2) is an individually administered, standardized assessment battery designed for use with children aged birth to 7 years, 11 months. The BDI-2 measures key developmental skills in the following areas: Adaptive, personal-social, communication, motor, and cognitive [1].

Description

The BDI-2 was developed based upon the theory that children achieve specific developmental milestones in sequence and that reaching milestones generally depends on mastering preceding milestones. The test is a revision of the Battelle Developmental Inventory developed in 1984 by Jean Newborg in response to the need for assessments that measure the developmental progress of young children. The BDI-2 provides information to professionals at the preschool, kindergarten, and primary school levels on the developmental and functional skills of young children. Examples of professionals who may administer the BDI-2 include: Teachers at the preschool, kindergarten, and primary levels; special education teachers; infant interventionists; psychologists; speech and language pathologists; adaptive physical education specialists; clinical diagnosticians; health professionals; and other related service providers.

The purpose of the BDI-2 is to assess key developmental skills in children from birth to 7 years, 11 months. The complete BDI-2 consists of 450 items grouped into five domains: Adaptive, personal-social, communication, motor, and cognitive.

The Adaptive domain measures the ability to use information and skills acquired in the other domains of personal social, communication, motor, and cognitive.

Containing 60 items, the Adaptive domain is divided into two sections: Self -Care and Personal Responsibility. The Self-care subdomain consists of 35 items measuring skills in the areas of eating, dressing, toileting, grooming, and preparing for sleep. Administration of this subdomain is appropriate for children aged birth to 6 years. The Personal Responsibility subdomain is appropriate for children aged 2–8 years. This subdomain measures the child's ability to interact safely and in a useful manner with the environment.

The Personal-Social domain assesses a child's ability to form meaningful social interactions with peers and adults as well as the ability to develop a self-concept and social role. This domain consists of 100 items and is divided into three subdomains including: Adult Interaction (AI), Peer Interaction (PI), and Self-Concept and Social Role (SR). Adult Interaction is assessed in children ages birth to l year, Peer Interaction is measured in children aged 2–6 years, and Self-Concept and Social Role are assessed over the range of items in the BDI-2.

The Communication domain contains 85 items and is administered to children aged birth to 8 years. The communication domain consists of two subdomains: Receptive and Expressive. The Receptive subdomain assesses a child's ability to understand spoken language along with information received through nonverbal means such as gestures. The Expressive subdomain measures how well a child is able to communicate information to others through sounds, words, and gestures.

The Motor domain consists of 100 items that assesses the child's ability to use both large and small muscles in three domains: Gross Motor, Fine Motor, and Perceptual Motor. The Gross motor subdomain consists of 45 items that assess that assess the use of large muscles used for walking, running, jumping, and coordinated movements such as throwing. The Fine motor domain uses 30 items to assess the control and coordination of small muscles in the arms and hands. Both the Gross and Fine motor subdomains are used to assess children ages birth to 6 years. The Perceptual motor subdomain contains 25 items related to the child's ability to integrate fine motor and perceptual skills for activities such as stacking blocks and copying circles. This subdomain is appropriate for children ages 2–8 years.

The Cognitive domain consists of 105 items designed to assess intellectual ability without regard to language. Areas such as attending to, perceiving, and processing information, remembering, thinking, and knowing are assessed in this domain. The Cognitive domain is divided into three subdomains: Attention and Memory, Reasoning and Academic Skills, and Perception and Concepts. Attention and Memory consists of 30 items that measures the child's ability to attend to stimuli both visually and auditorily for varying lengths of time and then retrieve information in the short and long term. Children ages 2 through 6 are appropriate for assessment in the Attention and Memory subdomain. The 35 items on the Reasoning and Academic subdomain assess critical thinking skills needs in order to: (1) perceive, identify, and solve problems; (2) analyze and appraise the elements of a situation; (3) identify missing components, contradictions, and inconsistencies; and (4) judge and evaluate new ideas. Skills necessary for reading, writing, spelling, enumeration, and mathematics are also assessed. This subdomain may be administered to children ages birth to 7 years, 11 months. The Perception and Concepts subdomain possesses 40 items that examine an infant's sensorimotor interactions with the environment as well as the older child's ability to conceptualize and discriminate features. This subdomain is appropriate for assessing children ages birth to 7 years, 11 months.

The administration time for the BDI-2 is 1 h for children younger than 2 and older than 5, and approximately 90 min for children between the ages of 2 and 5. A screening test is also offered as part of the BDI-2 which contains 100 of the 450 items. Results obtained from the screener help with determining in full administration of the BDI-2 is necessary for specific domains. The time needed to administer the screener varies from 10 to 30 min depending on the age of the child. Individual domains are assessed in separate Item Test Books to facilitate ease of administration. Information gathered from the administration of the BDI-2 is useful in assisting professionals with identifying developmental areas of concern at a young age.

Domains and subdomains are individually administered using structured, observation, or interview administrations. Additionally, the domains may be given in any order. The structured procedure involves the examiner eliciting responses from the child using manipulatives or other stimuli. The observation administration procedure involves the examiner observing the child and how the child responds during typical home, school, and other natural settings. Ideally with the observation administration procedure the examiner will be able to observe the child over a period of time to obtain the best representation of the child's abilities. The interview administration procedure is implemented when information about specific conditions or frequencies regarding the child's behaviors need to be obtained from a parent, caregiver, or teacher. The interview administration is most frequently used for early age items when the child is not able to

answer the question and must rely on a parent, teacher, or caregiver to provide the information.

The BDI-2 produces a total score that is a composite of all five domains and provides a general level of where the child is developmentally. Each domain is assigned a developmental quotient (DQ) that is based on a mean of 100 and standard deviation of 15. According to the test authors the Total BDI-2 DQ score is the most reliable score for the test because it considers all of the domain areas. Scoring Pro software is available to assist with scoring for the BDI-2.

Prior to beginning standardization, the BDI-2 was subjected to a tryout phase. During this phase, a 466 item tryout edition with new items, reconfigured subdomains, and new toys and manipulatives were prepared. 850 cases were collected during this period from a wide range of geographical locations across the United States. Following the collection of these cases, a data analysis took place and items that were identified as problematic were either adjusted or replaced.

Following the tryout phase, standardization was conducted using a sample of 2,500 children ages birth to 7 years, 11 months. Four United States census regions were used: Northeast, Midwest, South, and West and data was collected over a 14-month period. As part of the standardization process, 310 examiners from the various census regions were selected to administer the BDI-2. Stratified random sampling based on age, sex, race/ethnicity, geographic region, and socioeconomic level was conducted to select child participants although the number of children from each of the various regions was not provided. According to the test authors the sample was nationally representative and matched to percentages provided by the US Census Bureau (2001).

The BDI-2 has reliability coefficients in all subdomains at or above .85 and ranging from .85 to .95 indicating moderately high to excellent reliability. The reliability coefficient for the Total BDI-2 DQ score was .99 indicating excellent reliability for internal consistency.

The BDI-2 test kit contains numerous toys and manipulatives that are visually interesting for children in the targeted age range. Additionally, skills targeted within each subdomain are distributed in an age appropriate sequence for the development of milestones. Sensitivity to the child's ability to perform tasks and provide information is displayed through the use of structured administrations, observations, and interviews depending on the type of information to be obtained and the age of the child.

Concurrent validity studies were completed by individually administering the BDI-2 and the Bayley Scales of Infant Development, Second Edition (BSID-II). A moderate correlation of .61 was found to exist between the BDI-2 Cognitive DQ scores and the Mental Index Score on the BSID-II. Additionally, a moderately high correlation of .75 was found between the BDI-2 Communication DQ and the BSID-II Mental Index Score along with a moderate correlation of .64 between the BDI-2 Motor DQ and the BSID-II Motor Index score. Lower correlations were found in the following areas: .34 for the BDI-2 Cognitive domain and the BSID-II Motor Index, .43 for the BDI-2 Communication DQ and the BSID-II Motor Index score, and .48 between the BDI-2 Motor DQ score and the BSID-II Mental Index. The lower scores support divergent validity.

Additionally, extensive studies on the BDI-2 with special population groups were conducted. These groups consisted of children with autism, cognitive delays, developmental delays, motor delays, prematurity, and speech/language delays. Specificity values indicating whether a child will be correctly identified using the BDI-2 scores were at .91 for autism, .86 for cognitive delays, .83 for developmental delay, .80 for motor delay, .75 for speech and language delay.

Relevance to Childhood Development

The BDI-2 is a useful tool in assessing developmental milestones in children ages birth to 7 years, 11 months. Adaptive, Communication, Cognitive, Motor, and Personal-Social milestones are assessed for this age group using child-friendly language and manipulatives. Results of this assessment are helpful in providing professionals with information regarding how a child is progressing developmentally and identifying children who may require early intervention in conjunction with other assessment measures.

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Battered Child Syndrome

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Synonyms

Abused children; Child maltreatment; Effects of physical abuse; Physical abuse; Shaken baby syndrome

Definition

The multitudes of physical and emotional issues that manifest in children as a result of long term and repeated abuse or neglect.

Description

Battered child syndrome is the name for the combination of physical and psychological problems that are found in children after a history of repeated abuse. Battered Child Syndrome as a concept was developed in 1962 by Kempe and colleagues [4]. They developed the term as a way of explaining a clinical condition found in children who had suffered from repeated abuse [3].

Abuse can occur in many different ways including bruises, burns, broken bones, internal injuries, sexual assault, choking, and verbal abuse [1]. Child maltreatment accounts for approximately 1,400 deaths of children each year and about 14,000 children are seriously injured as a result of abuse or neglect [1]. Indicators of child physical abuse include broken bones that cannot be explained or are unusual, bruise marks that have patterns such as fingers, hands, or belts, bruises that are not in typical areas where normal childhood activity causes bruising (i.e., knees), burns of various types including burns to the hand or foot (called "sock" and "glove" patterns), cigarette burns, radiator or burns from other hot objects, bite marks, black eyes, choke marks, circular marks often found on the wrists or ankles that indicate twisting or tying up, and unexplained abdominal injuries [1]. Some of the physical, emotional, and behavioral issues that may arise in Battered Child Syndrome include problems at school, suicide, acting out sexually, feelings of rejection, attachment issues, brain damage, blindness, disfigurement, and death [1, 2]. In some cases the symptoms appear right away and other times they have a gradual onset. Battered Child Syndrome can be difficult to prove in the legal system and it faces the scrutiny of professionals disagreeing about whether or not is an actual syndrome. Physical proof of repeated abuse can be found in x-rays where bones exhibit fractures at different levels of healing. Physicians are now able to assess from x-rays the type of break the child experienced. For example, if the fracture has a spiral pattern, it is indicative of a bone being twisted, in comparison to a clean break seen as a result of a fall [1, 3]. Other types of physical evidence may be bruises that are at different stages of healing, burns or scars from past burns, fractured ribs or skulls, or bleeding in the brain, behind the eye or other internal organs [1]. In summary, Battered Child Syndrome is the combination of injuries resulting from repeated abuse and the physical and emotional ways repeated abuse can affect the child [1–3].

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Baumrind's Parenting Styles

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Synonyms

Child-rearing; Discipline; Family structure; Parenting styles

Definition

Parenting styles refer to the typical ways parents think, feel and behave in terms of child-rearing.

Description

The most widely known categories of parenting styles are based on the work of Diana Baumrind [1, 2]. Most of her research has focused on two dimensions of parenting style: authority and affection [1, 2]. Authority or demandingness refers to the degree to which parents try to control their children's behavior by setting rational standards for behavior. Affection or responsiveness refers to the amount and way love is expressed to the child and acceptance of the child's points of view. Based on these dimensions, Baumrind identified three categories of parenting styles [1].

The ▶Authoritative parent shows high levels of control, coupled with high levels of warmth. Authoritative parents exercise significant authority over their children's behavior but at the same time they do this with warmth and affection. Authoritative parents make reasonable demands, are consistent and sensitive, and they provide reasons for their expectations. In this family structure, children's opinions are listened to and valued, though not necessarily followed. The child is encouraged to communicate and when parent and child disagree, joint

decision making is preferred. The child is gradually taught how to make decisions, leading to co-regulation of behavior, which prepares the child to assume eventual self-regulation of behavior [4].

The Authoritative parenting style is seen as the most effective approach to child-rearing. This style of parenting leads to socially responsible, competent children. In addition, children reared in this way become achievement oriented and cooperative with both adults and peers. Children are given autonomy appropriate to their age and ability but ultimately it is the parents who are in charge. This is the optimal approach to ensure good decision making ability in the children. This approach leads to greater compliance by the child, when compliance is critical. Children are not only more likely to comply with authoritative parenting; they are most likely to want to be like their parents.

The Authoritarian parent displays high levels of control and little warmth. This parent has lots of rules, strictly enforces them, and is unwilling to discuss or modify the rules. This produces passive, dependent children who are unhappy, moody and lack self-confidence. The child has to have some opportunity to understand the reasons behind the rules to appreciate them. The Authoritarian parent values obedience as a virtue and believes the child should accept her word for what is right. "Do what I say because I say so" is the motto of the Authoritarian parent. The child may obey but later flounders when faced with tough decisions because she has not learned to think and take responsibility for her actions.

The Permissive parent shows little control, makes few demands but displays lots of warmth. While permissive parents are nurturing, they do not take responsibility for guiding their children. This leads to children who lack social responsibility and self-control. These children are selfish; they have never learned to put others' needs ahead of their own and this affects friendships and relationships. Children are not done any favors by never having limits put on them. Society demands limits and one needs to learn this while young. When children are young many parents are reluctant to enforce limits or say "no" but when children are older and they have not learned to listen to authority, watch out. One day your teen may be bigger than you are.

Power does serve to legitimate authority to the child, thus if one had to choose, authoritarian approaches are preferable to permissive approaches up to about age 6. Power is not only far less successful when dealing with older children and adolescents it can actually undermine authority. Adolescents can reason formally and can see alternatives to parental directives. Setting limits when children are young teaches children to acquire self-discipline which permits children greater self-direction in later life.

Using the two dimensions of control and affection suggests a fourth category of parenting style: parents who are low in both authority and warmth. Baumrind did not find sufficient numbers of these parents to study them, but others [6] have described these parents as uninvolved or neglectful.

Relevance to Childhood Development

According to Baumrind's work, the optimal parent is both demanding and affectionate. In addition, parents differ in their beliefs that their children can act maturely and in their levels of communication with their children [3]. The parent has expectations for behavior based on the child's level of development and these expectations change with age of the child. With increasing age, the relationship between parenting practices and child behavior becomes increasingly bi-directional, that is, parents influence their children and children in turn influence parenting practices [5]. According to Baumrind however, parental effects are the most influential in this regard. Although it is easy to be an authoritative parent with a child who is very cooperative, parents who emulate the authoritative style can do so with less compliant children because authoritative parents are patient, consistent and prepared for children who are uncooperative. This approach will eventually lead to a more cooperative, compliant child. The research then generally favors the authoritative parenting style but the evidence comes primarily from North American Caucasian families [4]. The ideal style may be different in other cultures although support for this model has been found in Asian families [6]. And while parents are important, child temperament and marital quality have important roles to play in child outcomes.

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Bayley Scales of Infant Development: Third Edition

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Definition

The Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III) is an individually administered instrument to assess the developmental functioning of infants and young children. It is normed for children 1 month to 42 months of age and was recently updated in 2006. Like its predecessor the Bayley-II, the Bayley-III is intended to identify children with developmental delay. The measure is also designed to present information that will be used in treatment planning.

Description

Information is gathered from both the child and caregiver. The child is administered three separate scales: cognitive, language, and motor. The cognitive scale assesses play skills, information processing, memory and habituation skills, and reasoning abilities. The language scale is divided into two separate abilities: receptive and expressive. Receptive skills assessed by the Bayley-III include comprehending and responding to requests and discriminating between sounds in the environment. The evaluation of expressive language skills includes the ability to name objects and actions, communicate wants, respond to questions, and use multiword sentences. The Motor scales of the Bayley-III evaluate both fine and gross motor skills. Reaching objects, visual tracking, and use of a "pincer" grasp are some of the fine motor skills assessed. Gross motor skills evaluated include locomotion, balance, and jumping.

Information about the child's social-emotional functioning and adaptive behavioral skills are obtained from the child's caregiver. Adapted from the work of Greenspan (2004), the social-emotional scale assesses the child's mastery of functional emotional skills including self-regulation, socialization, and the ability to use emotional gestures to communicate. The adaptive behavior scale, also completed by a primary caregiver, evaluates functional skills in the areas of conceptual, social, and practical abilities. Scaled scores are derived from all scales on the Bayley-III.

The Bayley-III offers several updates from the earlier version including new normative data (gathered in 2004), more accurate norms listed in 10-day increments, expansion of the floor and ceiling and the addition of new items. Additionally, the authors made changes to improve the ease of administration. Empirical support for both reliability and validity has been achieved during the 2006 update.

Relevance to Childhood Development

The Bayley-III is widely used in a multitude of settings and programs. Medical clinics, child care agencies, community agencies that assist individuals with developmental disabilities, and private practitioners utilize this tool to document current functioning and determine appropriateness for services.

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BDI-2

▶Battelle Developmental Inventory: 2nd Edition

Beauty Hypochondria

▶Dysmorphia

Beck Anxiety Inventory

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Definition

The Beck Anxiety Inventory is a well accepted self-report measure of anxiety in adults and adolescents for use in both clinical and research settings.

Description

Background

The Beck Anxiety Inventory (BAI), created by Aaron T. Beck, MD, and colleagues, is a 21-item multiple-choice self-report inventory that measures the severity of an anxiety in adults and adolescents. Because the items in the BAI describe the emotional, physiological, and cognitive symptoms of anxiety but not depression, it can discriminate anxiety from depression. Although the age range for the measure is from 17 to 80, it has been used in peer-reviewed studies with younger adolescents aged 12 and older. Each of the items on the BAI is a simple description of a symptom of anxiety in one of its four expressed aspects: (1) subjective (e.g., "unable to relax"), (2) neurophysiologic (e.g., "numbness or tingling"), (3) autonomic (e.g., "feeling hot") or (4) panic-related (e.g., "fear of losing control"). The BAI requires only a basic reading level, can be used with individuals who have intellectual disabilities, and can be completed in 5–10 min using the pre-printed paper form and a pencil. Because of the relative simplicity of the inventory, it can also be administered orally for sight-impaired individuals. The BAI may be administered and scored by paraprofessionals, but it should be used and interpreted only by professionals with appropriate clinical training and experience.

Administration, Scoring, and Interpretation

Respondents are asked to report the extent to which they have been bothered by each of the 21 symptoms in the week preceding (including the day of) their completion of the BAI. Each symptom item has four possible answer choices: *Not at All*; *Mildly* (It did not bother me much); *Moderately* (It was very unpleasant, but I could stand it), and; *Severely* (I could barely stand it). The clinician assigns the following values to each response: *Not at All* = 0; *Mildly* = 1; *Moderately* = 2, and; *Severely* = 3. The values for each item are summed yielding an overall or total score for all 21 symptoms that can range between 0 and 63 points. A total score of 0–7 is interpreted as a "Minimal" level of anxiety; 8–15 as "Mild"; 16–25 as "Moderate", and; 26–63 as "Severe". Clinicians examine specific item responses to determine whether the symptoms appear mostly subjective, neurophysiologic, autonomic, or panic-related. The clinical can then further assess using DSM criteria to arrive at a specific diagnostic category and plan interventions targeting the underlying cause of the respondent's anxious symptomatology and/or diagnosis.

Psychometric Properties

The BAI is psychometrically sound. Internal consistency (Cronbach's alpha) ranges from .92 to .94 for adults and test-retest (one week interval) reliability is .75. Concurrent validity with the *Hamilton Anxiety Rating Scale, Revised* is .51; .58 for the *State* and .47 for the *Trait* subscales of the *State-Trait Anxiety Inventory, Form Y*, and; .54 for the mean 7 day anxiety rating of the *Weekly Record of Anxiety and Depression*. The BAI has also been shown to possess acceptable reliability and convergent and discriminant validity for both 14–18 year and inpatients and outpatients.

Clinical and Research Uses

The BAI can be used to assess and establish a baseline anxiety level, as a diagnostic aid, to detect the effectiveness of treatment as it progresses, and as a post-treatment outcome measure. Other advantages of the BAI include its fast and easy administration, repeatability, discrimination between symptoms of anxiety and depression, ability to highlight the connection between mind and body for those seeking help to reduce their anxiety, and proven validity across languages, cultures, and age ranges. Some researchers have suggested that the BAI may be less sensitive to symptoms secondary to medical or other trauma, more sensitive to panic disorder than it is to the symptoms of other anxiety disorders, and may need separate norms for males, females, and more ethnically/socioeconomically diverse samples.

The BAI is copyrighted by and currently available from Pearson Education, Inc. (http://www.pearsonassess.com). Since the development of the BAI and its documented use with adolescents, it has been adapted specifically for youth as the BAI-Y (one of five Beck Inventories adapted for younger patients and collectively called "The Beck Youth Inventories"). The BAI-Y consists of twenty self report items rated on a three point scale that assess a child's fears, worrying, and physiological symptoms associated with anxiety. Like the other Beck Youth Inventories, it can be used with patients aged 7–18 and is also copyrighted and available from Pearson. Because it was specifically developed and normed on children aged 7–14, it is a more appropriate measure of anxiety in patients in that age range and slightly higher. If appropriate, the clinician can use the adult form of BAI for the ending adolescent years and with young adult patients.

Relevance to Childhood Development

Anxiety is the state of heightened unpleasant physical and emotional arousal caused, usually, by awareness of and attention to some feared consequence, condition, or perceived threat. It can be experienced, subjectively, as

feelings of dread, discomfort, feeling ill-at-ease, and unprepared to address the anticipated or current situation effectively. Neurophysiologically, anxiety can be experienced as paresthesia (numbness or tingling), increased startle response (hypervigilance), and difficulty concentrating. Autonomic experiences of anxiety include feeling "hot," increased sweating (diaphoresis), increased heart rate (tachycardia), flushed face, etc. Anxiety is a normal emotion that prepares the mind and body to respond to a threat. As such, it is adaptive for survival. However, when anxious arousal persists over long periods it can cause a number of negative medical and psychological outcomes including the development of anxiety disorders.

Children with anxiety disorders frequently present with other problems that may be produced, in part, by their anxiety and that often serve to further increase their anxiety. These co-morbid problems include ADHD, depression, school refusal, poor behavioral control, poor peer relations, social skills deficits, bed wetting (enuresis), poor academic performance, eating disorders, etc. Unaddressed childhood anxiety will likely cause problems later in adolescence and adulthood since early experience has such a profound impact on the development of negative beliefs about self, world, and future. Negative beliefs, in turn, create a fertile environment for the construction of distorted assumptions, rules, and thoughts that only serve to heighten anxiety. Identifying anxiety through the use of simple measures like the BAI may alert us to the need to intervene in a child's life to remove real threats to physical and psychological safety. Such interventions would also, ideally, include helping the child learn to identify and dispute distorted perceptions of "threats" that are not real. In this way, the child can learn that feelings and emotions, including anxiety, can be controlled and/or managed.

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Beck Depression Inventory

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Synonyms

Similar Scales include: Hamilton Rating Scale for Depression (HRSD) [1]; Center for Epidemiologic Studies Depression scale (CES-D) [2]; Children's Depression Inventory (CDI) [3]

Definition

The Beck Depression Inventory is a 21-item self-report questionnaire that provides a measure of the severity of depressive symptoms [4].

Description

The Beck Depression Inventory (BDI) provides healthcare workers and researchers the ability to briefly (approximately 5–10 min) assess the severity of various cognitive and somatic symptoms of depression. It can either be

self-administered or read to clients by an interviewer. The BDI was originally designed for use with psychiatric patients, but it is frequently used with non-depressed individuals. Since it was first developed in 1961, it has been used extensively in clinical and research settings and with various populations [5].

Theoretical Background

The BDI is based on the cognitive theory of depression introduced by Aaron Beck in the 1950s and 1960s [6]. In working with several depressed patients, Beck noticed that they tended to display very similar negative thought patterns and dysfunctional beliefs (e.g., "Unless everyone loves me, I am worthless"). He hypothesized that these maladaptive cognitions existed prior to and caused the current depressive episode rather than resulted from the depression.

The Items

The BDI is composed of 21 items representing cognitive and somatic symptoms that are commonly displayed by clinically depressed individuals. Participants are asked to respond to each item based on how they have felt in the preceding week. They endorse each item based on a four-point scale (0–3), with 0 representing almost no presence of the symptom and 3 representing severe symptom presence. The following symptoms are assessed: mood, pessimism, sense of failure, self-dissatisfaction, guilt, punishment, self-dislike, self-accusation, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, body image, work difficulties, insomnia, fatigue, appetite, weight loss, bodily preoccupation, and loss of libido.

Psychometric Properties

The internal consistency of the BDI has been supported in both depressed and non-depressed samples, with most studies reporting high alpha coefficients (.82–.88 on average) [5]. The test-retest reliability may not be an appropriate measure for use with the BDI in psychiatric samples given the high probability of therapeutic change, but studies reporting test-retest reliability coefficients in non-depressed samples typically suggest good stability of BDI scores. The content validity is supported by the BDI's development from direct clinical observation of depressed patients and its congruence with DSM-III criteria for depression [7]. Convergent validity is supported by strong correlations between the BDI and other psychometrically sound measures of depression. Researchers have some concern with the high correlation between BDI scores and measures of anxiety; however, it is not clear if such effects are due to measurement error or high comorbidity between depression and anxiety. Nonetheless, studies have shown that the BDI can effectively discriminate between depressed and non-depressed individuals [8]. Although the BDI items can be generally categorized as either assessing cognitive or physical symptoms of depression, factor analytic studies show that the BDI is best conceptualized as being composed of a general factor, unlike the second edition of the BDI (BDI-II), which suggests either two or three latent factors of depression [8].

Interpretation

Summing the BDI items will result in a total score of 0–63, with higher scores indicating more severe depressive symptomology. Normative studies have determined cutoffs to be: 0–9 = minimal depressive symptoms, 10–16 = mild depression, 17–29 = moderate depression, 30–63 = severe depression.

Use with Children

Researchers have indicated doubt of the BDI's appropriateness for use with children (under 13 years of age) and even adolescents (13–17 years of age) [9]. Modeling it after the original BDI, Maria Kovacs developed the 27-item Children's Depression Inventory for use with ages 7–17 years [3, 9]. Since that time, the Beck Institute has developed a 20 item inventory for children and youth (the BDI-Y) to assess depressive symptoms that more closely adhere to the DSM-IV criteria for depression [10].

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Beck Therapy

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Synonyms

Cognitive therapy

Definition

Beck Therapy is a form of therapy developed by Aran T. Beck. Considered the father of cognitive therapy he has made unparalleled contributions to theory, psychotherapy and empirical research [12]. A core tenet of the therapy and the theory from which it derives is the notion that at the core of many common psychiatric disorders is dysfunctional or distorted thinking. Changing dysfunctional or distorted thinking is therefore a cornerstone of the therapy approach. Originally developed for use with depressive disorders, Beck Therapy has been used for anxiety disorders, substance use disorders, schizophrenia, personality disorders and medically related conditions. Beck Therapy has been incorporated into many cognitive behavior therapy approaches however the two are not synonymous.

Description

Theory

Building on the cognitive model that states that thoughts influence mood and behavior and that distorted or dysfunctional thinking is common to all psychiatric disturbances, Beck proposes that specific psychiatric disorders or diagnoses are associated with specific disturbances in thinking. Known as the content specificity hypothesis [1], disorder specific cognitive profiles have been generated for different disorders [2, 3, 4, 5]. In depressive disorders for example, themes of hopelessness and irreversible loss are present. In anxiety, themes of threat and vulnerability to harm are present. Key to the approach is specifying and understanding a number of cognitive phenomena that affect thought and behavior [6]. At the surface level, are automatic thoughts that are generated in specific situations and are actual words or images that go quickly through one's mind without reasoning. Some automatic thoughts are dysfunctional in that they distort reality and are associated with emotional distress and inability to achieve goals. Moreover Beck describes common errors in thinking detected in psychiatric disorders. Two of twelve such distortions identified include catastrophizing (assuming the worst will happen in the future) and all-or-nothing thinking (viewing a situation in two extreme categories rather than on a continuum) [6]. Automatic thoughts are derived from two deeper thought structures that operate outside of awareness unless specifically articulated: intermediate beliefs and core beliefs. Intermediate beliefs refer to rules, attitudes and assumptions. Core beliefs are absolutistic, rigid, central and global ideas about one and others. Intermediate beliefs are more accessible and modifiable than core beliefs. Core beliefs (or schema) develop in childhood about self, others and the world. They are largely negative in psychiatric populations and when activated, individuals find it difficult to process information that is not consistent with the core belief.

Therapy

Beck Therapy is considered a structured, goal-oriented, problem-focused and time-sensitive therapy. The therapist works from a continually evolving individualized cognitive conceptualization of the patient's difficulties. The cognitive conceptualization includes identification of current thinking that maintains problematic behaviors and emotions, identification of precipitating factors and, identification of developmental events and patient's enduring patterns of relating to these events that may be related to the presenting difficulties [6]. Therapists adopt an active, directive and collaborative style. Collaborative empiricism captures the practice of including the patient as an active participant in the therapy and that the therapist and patient form an equal working partnership [4, 6]. It also reflects the practice of ongoing evaluation of interventions and outcome by using both subjective and objective measures. Other important techniques include: (1) Socratic questioning – asking a client questions to elicit cognitive phenomena and to evaluate their validity, and (2) Guided discovery – a process through which patients are led to uncover underlying intermediate and core beliefs, followed by questioning whose goal is to evaluate the validity and functionality of beliefs [6].

Assessment Instruments

Ongoing assessment is an essential feature of Beck Therapy. For children, the Beck Youth Inventories of Social Impairment tap depression, anxiety, anger, disruptive behavior and self-concept [7].

Child Applications

Beck (cognitive) therapy has been adapted for use with children and its principles have been incorporated into a plethora of treatment models for treating disorders such as depression, anxiety, social phobia, and anger. Many

cognitive behavioral treatments incorporate the principles of cognitive therapy into their models. Therapy with children follows the foundational principles of the cognitive model, content-specificity hypothesis and the hierarchical structural organizational model of cognitive phenomena. Collaborative empiricism and guided discovery are also included. Therapy is also structured, goal-oriented, problem-focused, and time-sensitive. Not followed are developmentally incongruent tasks such as completion of thought records, reliance on talk only, rational analysis and disputation, and the completion of written homework. Treatment is likely to incorporate experiential methods such as games, drawings, stories, exercises, puppet and doll play, and the use of metaphors in rational analysis [9].

Relevance to Child Development

Child applications require attunement and adjustment to the cognitive developmental level of the child. The Beck model of treatment requires skills such as self-reflection, metacognition, consequential thinking, perspective-taking, understanding causality, reasoning and consideration of future possibilities [10, 11]. Children are still developing these skills so a role of the therapist can be to facilitate the development of these skills. Indeed, a model of child psychopathology consistent with cognitive deficit rather than distortion (the view from Beck's conceptualization) is more consistent with the current evidence [10]. Many practitioners offer modifications of cognitive therapy to be used in child therapy [9, 13]. DiGiuseppe [8], for example, notes that it is not until the Piagetian formal operational stage is achieved that one can expect a child to be capable of extensive rational analysis because it is at this stage that the child becomes capable of hypotheticodeductive reasoning. Between the ages of 7 and 11, or prior to the achievement of formal operations, the therapy must aim to restructure cognition through analyses of specific situations and use concrete examples. For children under seven, there is a need to rely less on verbally mediated instruction and means of conveying ideas, and more on concrete examples and representation materials such as use of pictures, diagrams, books and play. Although the literature shows that cognitive behavioral therapies that use adaptation of cognitive techniques with other methods are quite effective in treating a number of child problems, there is strong evidence to suggest that age and presumably cognitive developmental level plays a mediating role in the effectiveness of CBT [10]. Thus, older children are more likely to benefit from CBT however there is little support for the notion that it is more advanced cognitive skills that is the mechanism for behavior change [10]. Many studies do not examine or measure cognitive developmental level, many do not measure cognitive change and, many use age as a proxy for cognitive-developmental level [10, 11]. Moreover most treatments also use behavioral interventions as well. Much research remains to done, therefore, to understand the efficacy of use of cognitive interventions with children.

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Bedwetting

Synonyms

Enuresis; Urinary incontinence

Definition

The loss of control of urine during sleep making the bed wet. Enuresis is the Greek explanation of to make water.

Description

Some children have no control of their bladder during the night and wet the bed. This can be stressful for the child and the parents. This has been an ongoing worry for parents because they expect the child to stay dry during the night. The aged adult sometimes experience enuresis during the night as well as teens.

Relevance to Childhood Development

Parents worry about their kid's bedwetting and need to be supportive and patient. There are various items on the market that help to wake a child when the child begins to wet. Another alternative is to take the child to the bathroom during the middle of the night. The child should be taught to take care of their bedding the next morning if they have wet the bed. This helps the child to be responsible and releases the child from any feelings of shame associated from bedwetting. Anger and intimidation can make the problem worse. Children at a young age can learn to use the washing machine. Punishment does not solve the problem for the child who has little control of their bladder at night. Some children who have developmental problems also have problems staying dry at night. Children who have had trauma or major change in their lives may also wet at night. Most children will outgrow the problem by age ten. This is has been an ongoing problem though out history in all cultures and in both genders. How many children, teens or adults have this problem is unclear because cause of the embarrassment it can brings so it may often not openly discussed.

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Bed-Wetting

►Enuresis

Beery VMI

►Developmental Test of Visual-Motor Integration

Beery-Buktenica Developmental Test of Visual-Motor Integration

►Developmental Test of Visual-Motor Integration

Behavior

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Synonyms

Action; Movement, Response

Definition

Behavior may be most broadly defined as any activity engaged in by living organisms. A useful test is the dead man's test, which states that if a dead man can "do" it, then it is not behavior. Conversely, if a dead man can't do it, it is probably behavior [1].

Description

Behavior is a living organism's act of "doing," which includes, but is not limited to, moving, speaking, thinking, imagining, and feeling. However, it is only an action that is produced by an individual organism. For instance, behavior does not include a movement if the movement was produced by a force external to the organism such as wind or a body of water. Definitions of behavior tend to focus on its external aspects, or those behaviors which have an effect on the external environment of the organism. The only way behavior can be measured, and therefore accurately observed is to measure the environmental changes that the behavior produced [2]. Even the simple act of moving a hand displaces air and changes how light reflects off of the hand as it moves, thus indicating to observers that the hand did in fact move. Internal behaviors such as thinking, feeling, perceiving, etc. are still considered behaviors, but because they do not have an observable and measurable effect on the environment, they tend to be de-emphasized in scientific definitions of behavior [3]. Observable dimensions of behavior include topography, or form, temporal locus (time of occurrence), temporal extent (duration of occurrence), repeatability (frequency of occurrence), and intensity (e.g., a punch vs. a light tap on the shoulder).

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Behavior Analysis

►Applied Behavior Analysis (ABA)
►Behavior Modification
►Radical Behaviorism

Behavior Assessment

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Synonyms

Behavioral assessment; Functional analysis; Functional assessment

Definition

Multimethod approach to gathering information about the occurrence and frequency of behaviors across multiple settings. May also include the process of determining the cause (or "function") of behavior before developing an intervention [1].

Description

Behavior assessment deals with both overt (clearly observable) and covert (internal events such as thoughts, feelings) behaviors and may include tests that measure general or specific behavior within educational, vocation, community, or home settings [1, 2]. Indirect methods such as checklists, rating scales, and surveys may be used to measure behavior of a target individual in relation to their adaptive skills, social skills, functional skills, and appropriateness or dysfunction within different settings and situations. Additionally, direct methods such as systematic observation of the individual in the setting may also be used to collect useful data on the cause of the behavior. A second direct method may be used, in which different environmental events are manipulated to see how behavior changes. Indirect methods and systematic observation are generally referred to as functional assessment, whereas the manipulation of environmental variables is generally referred to as a functional analysis. Various interviews and rating scales exist to attempt to get at the cause of behavior. However, reliability is usually poor and these should be used only as a starting point for systematic and direct observation of the person's behavior [2].

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Behavior Assessment System for Children: Second Edition (BASC-2)

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Synonyms

Parent report measures; Personality testing; Self-report measures; Teacher report measures

Definition

The Behavior Assessment System for Children: Second Edition is a series of instruments designed to help aid in the diagnosis and treatment of children, adolescents, and young adults between the ages of 2 and 25.

Description

The Behavior Assessment System for Children: Second Edition (BASC-2) is a series of instruments for children, adolescents, and young adults between the ages of 2 and 25. The BASC-2 system has Parent Rating Scales (PRS), Teacher Rating Scales (TRS), Self-Report of Personality (SRP and SPR-I), a Structured Developmental History (SDH), and a Student Observation System (SOS). The TRS, PRS, and SRP have multiple forms for different age groups. In addition to these forms, the BASC-2 has a Parenting Relationship Questionnaire (PRQ) that assesses the relationships between the child and his/her caregiver(s). The forms are available in English and in Spanish [1, 2].

The BASC-2 TRS and PRS were written to be at the sixth grade reading level and can be completed by the raters in under 20 minutes. The SRP was written at the second grade reading level and can be completed in approximately 30 minutes. On the BASC-2 TRS and PRS, teachers and parents rate how often the examinee's behavior and symptoms occur on a four point rating scale ranging from Never (N) to Always (A). On the BASC-2 SRP, examinees rate their behavior on the same four point rating scale, as true/false, or as yes/no, depending on the age group [1, 4].

Scales

The items on each form of the BASC-2 can be used to calculate a variety of scales designed to assess for adaptive functioning and for symptoms of psychopathology [3]. Additionally, each form contains validity indices that assess how the rater approached the test.

The items on the TRS and PRS can be used to calculate five composite scales: Adaptive Skills, a Behavioral Symptoms Index, Externalizing Problems, Internalizing Problems, and School Problems. The items can also be used to calculate 16 Clinical and Adaptive Scales and seven Content Scales. The Content Scales can only be calculated by using the scoring software and cannot be calculated by hand [1].

The items on the SRP can also be used to calculate five composite scales: The Emotional Symptoms Index, Inattention/Hyperactivity, Internalizing Problems, Personal Adjustment, and School Problems. In addition to these composite scales, the items on the SRP can be used to calculate 18 Clinical and Adaptive Scales and seven content scales [1].

Scoring

The BASC-2 can be scored either by hand in approximately 30 min or by using the ASSIST Plus software profile. The raw scores are transformed into T scores and percentiles [1, 2].

Psychometric Properties

The BASC-2 was standardized on samples from the United States between 2002 and 2004. The standardization samples for each of the instruments (TRS, PRS, and SRP) were large, ranging from 3,400 (SRP) to 4,800 (PRS). The sample used was representative of the population of the United States at the time of standardization for race, sex, geographic region, and parent's socioeconomic status. The internal consistency of the BASC-2 instruments is adequate ranges from 0.67 to 0.97. Similarly, the test-retest reliability is good, ranging from 0.56 to 0.99 [1].

Relevance to Childhood Development

The BASC-2 can be used to evaluate children for the presence of psychopathology.

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Behavior Change

►Behavior Modification

Behavior Disorders

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Synonyms

Emotional and Behavioral Disorders (EBD); Emotional disturbance; Emotional Disturbances or Behavioral Disorders (ED/BD); Parent management training; Serious Emotional Disturbance (SED)

Definition

A disability characterized by behavioral or emotional responses that are not accepted by the norm and referent group and have adverse effects on educational performance.

Defining Behavior Disorders

For more than 50 years, emotional disturbance has been an umbrella term for a variety of behavior disorders, including schizophrenia, autism, phobias, withdrawal, antisocial behavior, psychosomatic disorders, depression, anxiety, elective mutism, and a host of other pathologies. The term behavior disorders is one used to classify abnormal, atypical, or deviant behavior. Other terms sometimes used interchangeably include impairment, handicapped, psychopathology, mental illness, or mental disorder. This

terminology variation reflects theoretical positions or can be in reference to particular professions, oftentimes in disagreement regarding assessment and treatment. In addition to the definitional problem of behavior disorders is a general reluctance to label individuals as behavior disordered, due to the high cost of treatment and/ or negative connotation in our society. Although both fields of education and psychology have made great strides in this area with awareness, public acceptance and treatment options, there still remains lack of consensus on definition and terminology [5].

The Federal Definition

The federal definition, used in IDEA '04 (Individual with Disability Education Act) uses the term *emotional disturbance* to describe students with emotional or behavior disorders, which is the special education category under which students whose behavioral or emotional responses are not typical are provided funding and special services. That term is described as a condition that "exhibits one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance:

1. An inability to learn that cannot be explained by intellectual, sensory, or health factors
2. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers
3. Inappropriate types of behavior or feelings under normal circumstances
4. A general pervasive mood of unhappiness or depression
5. A tendency to develop physical symptoms related to fears associated with personal or school problems

Emotional disturbance includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance.

It is important to note that if a child fails to meet the above criteria, special education services will not be funded or provided in public schools" [1].

The National Mental Health and Special Education Coalition Definition

As the IDEA '04 term and definition were criticized by many professionals, 17 organizations came together and drafted another definition and continues to lobby federal and state governments to adopt it. The definition for *Emotional or Behavior Disorders* is as follows: "The term emotional or behavioral disorder means a disability characterized by behavioral or emotional responses in school so different from appropriate age, culture, or ethnic norms that they adversely affect educational performance. Educational performance includes academic, social, vocational, and personal skills. Such a disability:

1. Is more than temporary, expected response to stressful events in the environment
2. Is consistently exhibited in two different settings, at least on of which is school-related
3. Is unresponsive to direct intervention in general education, or the child's condition is such that general educational interventions would be insufficient

Emotional or behavioral disorders can coexist with other disabilities. This category may include children or youth with schizophrenic disorders, affective disorders, anxiety disorder, or other sustained disorders or adjustment when they adversely affect educational performance."

The term behavior disordered is often seen as less stigmatizing, less severe, more socially acceptable, and more practical than other terms. Still, emotionally disturbed and behaviorally disordered are used interchangeably in keeping with popular usage, but emotional behavior disorders (EBD) is the term of choice in the field of education [2].

Description

Common Characteristics of Students with Behavior Disorders

Children and adolescents with behavior disorders can be divided into three groups:

1. Externalizing behaviors
2. Internalizing behaviors
3. Low incidence behaviors

Externalizing behaviors constitute an acting-out style that could be described as aggressive, impulsive, and noncompliant. Some examples of this include hyperactivity, aggression, and delinquency. Internalizing behaviors are more typical of a style that appears withdrawn, lonely, depressed and anxious. Some examples of this include anorexia or bulimia, depression or anxiety. Low incidence disorders are those that occur infrequently but are serious when they do occur. Schizophrenia, for example, can include bizarre delusions and dissociation from reality and incoherence [7].

Demographics

The typical population that has been diagnosed as having a behavior disorder is predominately male, likely to be African American, and between the ages of 8 and 17 years old. These students are often over 13 year old when they

are identified and come from families that report an annual income of less than $12,000. About 44% come from single parent homes. Student with behavior disorders are more likely to be educated in restrictive settings including self-contained classrooms, separate schools, residential facilitates, and hospital environments [3].

Social Skills

Students with behavior disorders are typically less socially skilled than their peers. Their impulsivity, poor interpersonal skills with both peers and adults are typical reasons for their referral to special education. These children's behavior patterns are oftentimes self-defeating and are likely to include tantrums, aggression, coercion, noncompliance, and poor academic achievement. Early intervention is the key to instruction for social skills, and should be embedded in the general education curriculum.

Academic Performance

Regardless of intellectual potential, children with behavior disorders typically do not perform as well as their peers academically. They are often referred to as underachievers and unmotivated. They are more likely to drop out of school than their general education classmates and more likely to become delinquent. Once in the criminal justice system, they are less likely to receive necessary support and services, thus enabling their frustration to manifest more behavior problems [4].

Causes

The reasons why problems arise in children are usually difficult to identify, and the disability is likely to be the result of several and overlapping variables. Five popular models that contribute to the explanation of how behavior disorders occur include the biophysical model, psychodynamic model, cognitive model, the behavioral model, and the ecological/systems model [8].

Prevention and Treatment

Prevention and treatment of behavior disorders can be accomplished in many ways. From a school's perspective, the most effective approach is to create a school culture where positive behavior support, social skills instruction, and consistency serve as direct intervention. Programs that apply functional behavior assessments to determine the cause of the behavior and help identify actions that will effectively remediate patterns are the most successful. Behavior intervention plans can be most helpful when educators are designing individualized instruction for students. In addition, programs that focus on children's strengths, rather than their deficits and teach from a wellness perspective have much higher results in achieving success for this particular population.

Relevance to Childhood Development

Exactly what constitutes behavior disorders reflects societal standards for behavior and expectations about the development of children. Many behaviors that our society labels as disordered in a particular child might be acceptable if that child were a different age, lived in another society, came from a different culture, or behaved under different circumstances. Early screening and evidenced-based interventions with children with behavior disorders is critical to avoid the negative outcomes awaiting these children in the absence of effective instruction and support [6].

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Behavior Management

►Timeouts

Behavior Modeling

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Synonyms

Copying; Demonstrating; Imitation training; Observational learning

Definition

Teaching by demonstrating a response and a consequence.

Description

Social learning theory, specifically the work of Albert Bandura provides the foundation for behavior modeling. In behavior modeling, an individual can learn new behaviors by observing. The correct behavior is demonstrated for the learner, the learner observes the model, and then imitates the behavior of the model [1]. For modeling to be most effective the learner must demonstrate attending and imitative skills in their repertoire; that is, the learner must be able to pay attention and perform the behavior that the model just demonstrated. Modeling is an easy, practical, and successful way of teaching.

Behavior modeling can be effective for both simple and complex behaviors. The behavior should be modeled in many ways, in a variety of situations, and as many times necessary for the learner to imitate the behavior correctly. Finally, if the model is of high status, resembles the observer/ learner and there are successful outcomes for the model (i.e., reinforcement delivered for the behavior), the learner is more likely to imitate the behavior [2, 3].

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Behavior Modification

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Synonyms

Behavior analysis; Behavior change; Behavior therapy

Definition

Behavior modification is the use of empirical techniques to assess, evaluate, and change behaviors.

Description

During the Behaviorist movement, behaviors were thought to be a result of learned responses to environmental stimuli. Research on humans and animals was conducted to examine how behavior develops and changes over time with the use of modification techniques [2]. Behavioral modification techniques have since become an effective means to evaluate and modify behaviors. These techniques are not only used by psychologists in private practice but also in everyday life settings, such as hospitals, schools, businesses, and private practice [2, 4].

Early attempts at behavior modification were done with animals and primarily involved pairing environmental stimuli (i.e., sounds, smells) with physiological reflexes. The earliest and most noted example of classical conditioning is of Pavlov's dog. Ivan Pavlov was able to elicit a salivary response from dogs by pairing the presence of food with a loud noise, therefore creating a learned response from the dog when exposed to particular stimuli [6].

Research conducted by E.L. Thorndike and later by B.F. Skinner demonstrated that behavior could be shaped not only by pairing stimuli with physiological reflexes, but also with consequences to behavior [6]. This process is termed Operate Conditioning, implying that behaviors can be function of environmental stimuli. There are several consequences associated with Operate Conditioning: Reinforcement, Punishment, and Extinction. Reinforcement techniques can be either positive or negative. A positive reinforcement occurs when something is awarded as a consequence of a particular behavior, thus increasing the chance that the behavior will occur again. A negative reinforcement occurs when something is taken away as a consequence, also increasing a particular behavior. Punishment is different from reinforcement because it is concerned with decreasing rather than increasing behaviors [2, 4]. Extinction is different from reinforcement because it does not involve the use of consequences. When a behavior is neither followed by a positive or negative consequence, the frequency of that behavior will decrease, such as ignoring particular behaviors [4].

Albert Bandura found that behavior could also be modified through observational learning or by simply watching others. Children in his study watched physical and verbal aggression and were, in turn, more likely to engage in similar aggressive acts. Boys in his study were more aggression to dolls than girls [1]. Therefore, children in his study learned aggressive behavior simply by watching others.

The most effective way of modifying behaviors involves functionally analyzing behaviors. A functional analysis refers to identifying and defining, assessing, measuring, and evaluating behaviors. One must identify target behaviors, specifically defining those behaviors in a way that can be easily measured, then assessing for such characteristics as frequency, duration and consistency [5].

Assessment also involves determining what factors might be influencing the behaviors [4]. Empirical techniques, such as reinforcements, punishments, modeling, and shaping, may be used to modify existing behaviors or increase desired behaviors. The target behaviors are then measured to determine if the empirical techniques had an influence on the behaviors [2, 4]. An evaluation answers the question: Did the techniques used have an impact on the target behaviors?

When studying behaviors, it is important to consider reinforcement contingencies: Antecendents, Behaviors, and Consequences, often referred to as the ABCs of behavior modification. They are often used with programs to help change or modify behaviors. These contingencies can be used to better understand target behaviors (e.g., what happens before a behavior and after the occurrence of a behavior). Specifically, it is important to understand a particular behavior in terms of what may be increasing or decreasing the likelihood of that behavior. Antecedents refer to the setting or what is going on prior to a behavior that may be creating a situation to reinforce the behavior, such as prompting behaviors by giving instructions or requests. Consequences refer to the responses from the behavior that may also be reinforcing [2].

There are several assessment procedures that can be used to help measure behaviors: Indirect, direct, and experimental procedures. Indirect procedures consist of less empirical assessment and rely more on others' perceptions [4]. Information about particular behaviors can be obtained from interviews, informal observations, and questionnaires. Direct procedures are a more formal means of obtaining information from others. Information can be gathered through the use of formal observations. Specific behaviors are defined and require observers to monitor target behaviors. Formal observations can involve the use of documenting such characteristics of the behaviors as frequency and duration [4]. Experimental procedures are a means to determine whether particular antecedents or consequences of the target behaviors influence them. After these techniques, an evaluation is conducted to determine if the empirical techniques made an impact on the target behaviors [4].

Once an assessment has been conducted, it is important to determine whether the empirical technique(s) had an impact on the target behavior(s). This is usually done by comparing baseline data with intervention data, that is comparing characteristics about the behavior (frequency, duration) with the data collected after implementation of behavior modification techniques [4]. If the difference between the data is greater than expected by chance, one can say that the empirical techniques made the difference. In other words, the behavior changed is likely due to the techniques used.

Relevance to Childhood Development

Before entering school, children are taught at home by parents. Parents, therefore, have the initial responsibility to shape their child's behavior and to how interact with others in the world [4]. Behavioral modification skills have been taught to parents to more effectively teach their children developmental milestones, such as language use, fine and gross motor use and socializing with others.

Beginning in the 1960s, schools have increasingly applied behavior modification techniques for classroom management. Schools have adopted a system called Positive Behavior Support to help understand the context of student behaviors. For example, this system has been used to help teachers with classroom management and to better develop school work habits with students. These applications have particularly been successful with students with learning problems or inappropriate school behaviors [4]. Typically, observations are conducted in the environment in which the student is having some trouble, then application of empirical techniques, such as schedules of reinforcement, punishment, or extinction, are used to modify identified problem behaviors.

Behavior modification has also been used to help management and teach students with more severe developmental problems, such as Autism and those identified with significantly lower intellectual ability [4]. Programs have been used to teach everyday functional skills (e.g., dressing, brushing teeth) and with pro-social skills (e.g., eye contact, playing with others). Further, behavior modification techniques have been used to teach vocational and more academic related skills as well [4]. Behavioral therapy for a wide array of developmental disabilities and disorders has been found to be an effective means of treatment.

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Behavior Rating Scale

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Definition

An assessment instrument designed to obtain the perceptions or judgments of a subject's behavior in a standardized format. Rater's may be the subject (self-rating) or others with the opportunity to observe and describe aspects of the subject's behavior (i.e., parents, teachers, etc.) [2].

Description

Behavior rating scales are often used as screening devices to obtain information on and help to identify individuals who may benefit from a more detailed assessment or who may be at risk for developing more serious problem and who may benefit from early interventions. Behavior Rating Scales are also used to monitor progress in treatment programs [1]. Behavior Rating Scales should never be utilized as the sole source of information for the purposes of diagnosis or classification of a specific educational or psychological problem.

Behavior Rating Scales are described as "narrow band" if designed to measure a specific behavior or attribute and "broad band" if designed to measure multiple behavioral and emotional attributes simultaneously [4]. Many rating scales have different forms for self, parent, caregiver or teacher ratings.

Behavior Rating Scales are cost effective tools to obtain information from various informants in a cost effective way, and are widely accepted. Reliability and validity vary across the many rating scales available, but are typically acceptable. Limitations of rating scales include the potential for rater bias [2], as well as the concept that ratings scales are a "slice of time" measurement and therefore subject to some variability based on external factors of both the rater and the subject.

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Behavior Rehearsal

▶Role-Playing

Behavior Therapy

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Synonyms

Behavior modification

Definition

Behavior therapy refers to both a therapeutic process and a set of techniques that are based on operant and respondent conditioning.

Description

Behavior therapy began in the early 1950s as an alternative to the mentalistic (psychodynamic) approaches that dominated psychology. Based on research from both operant and respondent conditioning, it is more about a theoretical approach to understanding human behavior and a commitment to scientific methodology than a mere set of therapy techniques. The term "behavior therapy" is credited to three researchers: Ogden Lindsley in 1953, Arnold Lazarus in 1958, and Hans Eysenck in 1959 [1]. It is distinguished from other forms of therapy by five primary characteristics: (1) focus on the current, as opposed to historical, influences on behavior, (2) emphasis on using overt behavior change as the ultimate determinant of treatment progress/success, (3) clear specification of treatment procedures to foster replication, (4) reliance on empirical research for selecting treatment procedures, and (5) clear specification in defining, measuring, and treating target populations [1]. Behavior therapy is used for individuals, couples, groups, and families experiencing a wide range of problems (e.g., childhood noncompliance, phobias/fears, enuresis, marital relationship difficulties, sexual dysfunctions, aggression, headaches/ stomachaches, social skills, and impulsivity).

The focus in behavior therapy is on eliminating maladaptive behaviors and replacing them with more adaptive

and socially appropriate responses. This is accomplished by identifying the conditions under which the behavior occurs and the consequences that reinforce the maladaptive behavior. A number of empirically validated treatments are used within a behavior therapy model including systematic desensitization, modeling, rehearsal, behavioral skills training, anxiety management training, and biofeedback, to name a few [3].

Relevance to Childhood Development

Most models of counseling/therapy focus on talk as the mechanism of change. For children and adolescents, the research consistently indicates that the counseling/therapy approach must be much more concrete, active, and with less focus on talk and working through "issues" or past history. Behavior therapy takes a more active approach by focusing on selecting specific target behaviors, identifying replacement behaviors, teaching new behaviors, and helping the child use their skills/behavior in the environment where those behaviors are needed. The ultimate criterion of success in behavior therapy is whether or not the child is mastering and using their new skills at the right time in the right place [2].

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Behavioral Assessment

►Behavior Assessment

Behavioral Consultation

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Synonyms

Eco-behavioral consultation; Problem-solving consultation; Solution-oriented consultation

Definition

Behavioral consultation is described as a multi-step problem solving process that provides indirect service delivery to a client. This triadic relationship is facilitated through a consultant-consultee relationship in which the consultant works to change the client's behavior by empowering the consultee with skills for future problem solving.

Description

Behavioral consultation emerged in the 1970s and is now considered an integral part of school-based practice. Within the school system, the consultant is typically the school psychologist while the client is the student. The consultee is typically a teacher or parent who works directly with the student (i.e., client). The earlier models of behavioral consultation drew on the operant learning theory as its theoretical basis. This theoretical foundation remained at the core for years with an underlying assumption that the consultant led the consultation process by using specific interviewing techniques and reinforcing the consultee for their desired responses and/or behaviors [2]. Currently, behavioral consultation can be carried out in many forms [1].

Behavioral consultation is structured around a series of five stages that focus on problem-solving. These five stages include: (1) developing a relationship between the consultant and consultee, (2) problem identification, (3) problem analysis, (4) plan implementation, and (5) plan evaluation. These five steps are integral parts of the behavior consultation model that produces the client's change in behavior. Although the five steps are outlined in a specific order, they tend to overlap with one another and do not always occur in the exact order [4]. In order for the steps to be carried out successfully, a strong working relationship between the consultant and the consultee must be established.

Building a Strong Relationship

One of the most important steps of a successful consultation is a good working relationship between the consultant and consultee. Positive working relationships help decrease resistance to the consultation process and intervention implementation, increase the probability that consultees with follow through with the intervention, and in turn increase the effectiveness of the process for the client. When the consultant and the consultee meet for the first time each participant works to become more familiar with one another through conversation. The goal of this is to create a safe and judgment free relationship in which both parties have a mutual respect for one another and feel their opinion and expertise is valued [5].

During this stage it is also recommended that the consultant and consultee create a "working contract" that defines the roles and responsibilities of all parties throughout the consultation as well as the various activities that will take place during the consultation.

Problem Identification

This stage is dedicated to describing the problem in clear, concise, complete, and measurable terms. The consultant uses various interviewing techniques such as questioning, paraphrasing, and clarifying questions to allow the consultee to operationally define the child's behavior. Often, consultees provide vague descriptions of the presenting behavior and need the consultant to help them think about the problem in a concrete manner. Providing a description of a specific and observable behavior allows for ease in data collection during the next step of the problem identification phase: baseline data collection. The consultee collects baseline data on the presenting behavior to determine if a discrepancy exists between the child's current level of behavior and the expected level of behavior. Once a discrepancy is noted through reliable data collection, the consultant and consultee work together to identify underlying factors that may be contributing the occurrence of the observed behavior.

Problem Analysis

During this stage, baseline data collected from the Problem Identification stage is reviewed. This analysis provides an in depth look at factors that may be contributing to the child's behavior. The collected data will provide information about when and how frequently the behavior occurs. Also, it provides information about behavioral patterns that help identify antecedents and/or consequences that are possibly maintaining the behavior. These factors are then manipulated through intervention to improve the target behavior. In the classroom, environmental as well as instructional variables should be identified for analysis. This process helps to refine, and in some instances, alter the definition of the target behavior. The information gathered in this stage of the behavioral consultation helps to determine the intervention that will be implemented to address these underlying functions of behavior.

Plan Implementation

This is the stage in which the most appropriate intervention is selected and implemented by the consultee. It is important to design an intervention that is feasible to carry out and to consider the roles, resources, and training needed to implement the intervention. The selection and design of an intervention are often based on empirically supported theories and methods [3]. Data are routinely collected throughout the intervention phase as a means to evaluate the effectiveness of the intervention and whether the intervention is implemented as planned. Intervention implementation can take several weeks. During this time the consultee remains in frequent contact with the consultant for questions and concerns throughout this stage. Consultees may have questions about the implementation plan or encounter unforeseen challenges and/or effects of the intervention that may need immediate attention.

Plan Evaluation

This final stage of the behavioral consultation model is aimed at determining the success of the intervention plan as well as determining the level of satisfaction of the consultee. A successful behavioral consultation is indicated when there is a reduction in the discrepancy between the child's current level of functioning and the desired level of functioning. This would indicate that behavioral or social competency skills of the child were gained and/or skills and behaviors of the teacher were changed. This change in behavior should be maintained over time and generalize across multiple settings. Evidence of the above mentioned criteria may lead to the termination of a consultative relationship. At this time, a maintenance plan is put into place to ensure that the behavior is maintained once the behavioral consultation has ended.

Relevance to Childhood Development

Behavioral consultation is a practice that is becoming increasingly popular in today's school systems. This indirect service delivery approach provides teachers with the skills and self-efficacy to work with the most challenging students. The classroom is becoming progressively more diverse requiring teachers to work with students of various social-economic and cultural backgrounds, as well as disabilities. These factors coupled with typical childhood development could create a wide array of behavioral and academic challenges within the school setting. Behavioral consultants work closely with teachers to help them operationally define behavior and develop better data-based decision-making skills. Teachers gain knowledge and skills which allow them to work more effectively with the entire student population.

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Behavioral Disorders

►Conduct Disorder
►Psychological Disorders

Behavioral Disturbances

►Conduct Disorder

Behavioral Inhibition

►Shy Children
►Social Anxiety

Behavioral Intervention for Repetitive Behavior Disorders

►Habit Reversal

Behavioral Observation

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Synonyms

Assessment observations; Observations; Test observations

Definition

Behavioral observation is a broad term referring to a wide range of formal and informal techniques used by clinicians and researchers to document the behaviors of their clients and subjects. Often the term is used to describe behaviors that are observed during the course of an assessment. It also refers to observations made in other settings such as at home, work or school. Overall, the purpose of behavioral observations is to facilitate an accurate description and understanding of the client [2].

Description

Behavioral observations are building blocks that contribute to the foundation of clinical assessments. Observations are routinely collected as a part of a formal and structured psychological assessment process or as a component of a clinical assessment of behavior. Observations can be collected in numerous ways and in several settings [1, 3, 5].

In the most widely used definition of the term, behavioral observation refers to behaviors collected during a testing session that are crucial in the hypothesis testing that may help explain the performance of a child. Detailed observation often makes interpretation of quantitative test scores easier and can provide rich clinical data. Additionally, detailing the trends of observable behaviors allows the clinician to generalize across situations and times [4, 5].

Assessment behavioral observations often examine a broad range of variables that are observable to the examiner including a description of the examinee, their mental status, and the attitude of the examinee toward the examiner and the test situation. Readily observable behaviors that address sensory and motor abilities are also documented by attending to vision and hearing abilities and gross and fine motor skills. Behaviors that impact the testing may also include the examinee's activity level, attention/concentration, motivation and effort, persistence and tolerance for frustration. Communication and speech-language abilities as well as social emotional behaviors such as eye contact, affect, reaction to praise and encouragement and self confidence are all noteworthy. In some evaluations, more detailed observations about the problem solving strategies of the examinee are collected and used in generating a hypothesis about their functioning [4].

When a formal psychological assessment is being done, the clinician can often observe the child in several settings and situations to collect data on which to base their hypotheses. The waiting room behavior of the parent/caregiver and child as well as the behavior of both with a sibling can often provide meaningful information about variables such as family relationships, parenting strategies and parent-child

or child-sibling conflict. Similar behaviors may also be observed during breaks from testing. The clinician will also routinely observe the child during the assessment in structured and unstructured situations for behaviors that provide insight into the child's functioning [4].

In psychological, neuropsychological and psychoeducational reports, behavioral observations are a significant section of the report. The purpose of this section is to describe and interpret the behavior of the client with a focus on the presence of behaviors and what the specific behaviors may suggest about the child, the task, or the setting [4].

In documenting behavioral observations, examiners can use structured behavioral observation procedures as well as informal or formal assessment tools. For observing children in a natural setting, there are numerous formal and informal observation procedures to be utilized. Observational methods can provide for a systematic observation of behavior. In this case, the clinician will observe a child's behavior in a natural or specifically designed setting, and record or classify each behavior objectively. This data is analyzed for reliability and validity and converted into quantitative information. This is often done through operationally defining target behaviors to provide more accurate observations. Variables to consider are whether observations will be conducted in a sequence, what the period of observation will be, how to account for special, possibly low incidence occurrences, and preparation for unexpected situations [1, 3].

Observations can be an easily applied and effective assessment method. The planned incident procedure allows the clinician to conduct observations in a controlled situation while an ecological assessment focuses on the physical and psychological aspects of the situation. Home observations may allow the clinician to observe both the physical home environment as well as the functioning of the family within the home.

Recoding of data can occur in several distinct ways and can be selected based on the setting, the frequency and intensity of the behavior and the time frame chosen for observations. Narrative or anecdotal recording refers to the clinician keeping a running record of the child's behavior without the requirement of a time frame or category of behavior. An interval recording allows the clinician to do time and/or interval sampling. In this form of behavioral observation, the clinician samples the presence, frequency and intensity of behavior in specific observation segments. There are various techniques that can be utilized using time and/or interval sampling.

Event recording is a behavioral observation technique in which each instance of the behavior in an observation period is noted. Finally, ratings recording dictate that the clinician rates the behavior on a scale or checklist that documents the degree to which the attribute was observed [1, 3, 5].

Relevance to Childhood Development

Behavioral observations provide valuable qualitative and in some case quantitative details about how a child reacts to specific stimuli, settings and situations. This information often provides evidence of typical or atypical development of the child. Often the behaviors manifested by the child provide the clinician with valuable insight into the etiology of problems and/or provide specifically strong skills that are useful for the remediation of more challenging areas.

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Behavioral Style

►Thomas and Chess Classification of Infant

Behaviorally Disorganized Children

►Temper Tantrums

Behaviorism

Synonyms

Learning

Behaviorism is a philosophy of psychology built upon the proposition that everything an organism does including

acting, thinking and feeling should be thought of as behavior. This school of psychology maintains that all behaviors can be described scientifically without relying on internal physiological events or hypothetical constructs such as the mind. Behaviorism posits that there are no philosophical differences between publicly observable phenomena such as actions and privately observable processes such as thinking or feeling.

The behavioral school of psychology began in the early 19th century with the work of Ivan Pavlov investigating classical conditioning, Edward Thorndike, and John B. Watson. These researchers rejected introspective methods and sought to restrict psychology only to experimental and observable methods. Behaviorism is best associated with the writings and work of B. F. Skinner. His primary work involved operant conditioning.

In the second half of the 20th century behaviorism lost favor to the cognitive school. These two schools of psychological thought however have complimented each other well particularly in clinical areas. The most popular psychological treatment today is referred to as cognitive behavioral therapy (CBT). CBT involves the application of behavioral theory along with efforts to change thoughts and feelings as a means of motivating behavioral change.

Behaviours

►Cultural Bias

Beliefs

►Cultural Bias

Bell Curve

►Normal Curve

Bender Gestalt II

►Bender Visual Motor Gestalt Test

Bender Gestalt Test (BGT)

►Bender Visual Motor Gestalt Test

Bender Visual Motor Gestalt Test

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Synonyms

Bender Gestalt Test (BGT); Bender Gestalt II

Definition

A standardized, brief, nonverbal perceptual-motor, neuropsychological assessment technique consisting of nine figures presented to a subject one at a time, with the directions to copy the figures on a blank piece of paper. The Bender Gestalt II (2003) adds seven new stimulus cards, scoring procedures to obtain standard scores (see below), and a Motor Test and a Performance Test.

Description

Developed by Lauretta Bender in 1938 to study the role of perception in psychopathology [1], the Bender Gestalt Test is one of the more widely used tests in psychology. Variously described as a test of visual-motor integration, visuospatial skills, and perceptual-motor test, the Bender has been used in numerous clinical setting across all ages. Uses have including, screening for brain impairment, as a projective personality assessment technique, and as part of an in-depth neuropsychological examination.

Numerous scoring systems for the Bender Gestalt Test have been developed, most notable by Koppitz [4], Pascal and Suttell [6], and Hutt and Briskin [3]. Brannigan and Decker [2] in the latest revision to the Bender Gestalt Test (Bender Gestalt II) have developed a Global Scoring System yielding *T*-scores, percentile ranks, confidence intervals, reproductive quality and recall of designs.

While research has shown the BGT to correlate well with other neuropsychology measures and in differentiating patients with psychiatric problems from those with neuropsychiatric problems [5], criticism have centered on validity issues related with research hampered by use of competing scoring systems, small sample sizes, and varying populations.

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Benzodiazepines

►Depressants
►Valium

Bereavement

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Synonyms

Affliction; Deprivation; Distress; Misfortune; Mourning; Sorrow; Tribulation

Definition

State of sorrow over the death or loss of a loved one.

Description

Bereavement has typically been associated with the loss of a loved one through death. While many researchers have studied bereavement through multiple lenses, the stages associated with bereavement proposed by Kubler-Ross [2] have remained the seminal framework. The five stages of bereavement are: (a) denial, (b) anger, (c) bargaining, (d) depression, and (e) acceptance What has changed regarding the stages of bereavement is the notion that the stages occur in a explicit order and that people remain in each stage through completion as originally asserted by Kubler-Ross . It is unknown why people go through stages of bereavement or grief in unique orders or why they often come back to stages they have already visited. It is also now thought that a true acceptance may never be fully achieved for many. A common misconception regarding bereavement is that there is a normative length of in which an individual should resolve a given stage or finally reach acceptance. Rather, bereavement is a process that is unique for individuals and is confounded by other variables such as the effects of suffering multiple losses and individual's ability to cope with certain types of losses. Though everyone ultimately experiences bereavement, it remains one of the most misunderstood aspects of life.

Relevance to Childhood Development

During early and middle childhood, children develop a conscious awareness of death [5]. The concepts to be mastered are multifaceted and include: (a) death is irreversible, (b) death is the end result for all living things, and (c) after death all bodily functions cease [6]. How children grasp death and loss can further be broken down into age groups. Before the age of 2, though they may not have the words to express how they feel, children may show bereavement through crying, looking for the person who is now gone, or becoming withdrawn. From the ages of 2–5, children's behavior may regress and they tend to ask the same questions time and again. These children seem to need clear and concrete answers to their questions. When children are between the ages of 5 and 9, they begin to understand the irreversibility of death. This may be shown through questions about mortality. When children are between the ages of 9–13, friends are especially important, and they may feel different from their friends due to their loss. These children seem to understand the long-term consequences of the loss and may show an increased level of distress. Finally, adolescents find their peer groups and trusted adults to be especially important during their period of grief and may reveal emotional distress by withdrawing or engaging in risk-taking behavior [3].

It takes time and maturity for children to fully grasp what death means on both an intellectual and emotional level [7]. Further, when the death experienced is that of a loved one, children often have heightened fears about what has taken place and what they may expect in the future [1]. This may be especially difficult for adolescents who are struggling to deal with the concept of their own mortality. Also, death can be even more difficult for children to handle when parental figures do not know how to talk to their children about what has happened [4]. One example of this is when a parental figure tells a child that the person who died has "gone away" or is "sleeping" for a very long time. The same confusion can occur when children are told that a loved one went to the hospital to die. These messages are often confusing to young children and can lead the children to believe that the same thing may happen to them if they, for example, go on a trip, go

to sleep, or have to go to the hospital themselves. When addressing bereaved children and adolescents, it is essential to provide developmentally appropriate information that assists the child in making sense of their experience. Also, it is acceptable, and may even be helpful, for parents to show grief in the presence of their children. Though some parents fear this will create negative feelings in children, it can indeed help to normalize the feelings they are already experiencing. Further, parents are often distressed by children and adolescents' behavior during a time of grief and loss. For example, it is not uncommon for children and adolescents to be upset 1 min and want to go out and play the next, yet parents may be confused and worried by this behavior [3].

In summary, practitioners need to be knowledgeable about the grief cycle and understand that individual variations are expected. Each individual will go through the stages of grief at different rates in different orders and will reach acceptance at different times. The central tenet to therapeutic support is to help people understand that their emotional reactions to loss are normal and to encourage positive coping strategies. Working directly with the families of bereaved children and adolescents can ensure that they have information on bereavement that is vital to helping them to best help their loved ones.

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Best Friends

►Friendship
►Intimate Friend

Bias

►Prejudice

Bias, Race

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Synonyms

Prejudice; Unfairness

Definition

Racial bias is a personal and sometimes unreasoned judgment made solely on an individual's race.

Description

Biases affect the way we think, our attitudes and how we interact with those around us. Biases are based on the sum of our socialization experiences. They operate at both the conscious and the unconscious levels and in many cases are rooted in stereotypes and prejudices. A stereotype is a distorted or faulty observation based on a prejudgment of habits, traits, abilities or expectations of a specific group or individual. While many White Americans consider themselves to be unbiased in their interactions with people of color, 90% continue to link Blacks with negative traits. It is this association that creates the foundation for racial bias [3].

The term race, though a socially defined construct, is in actuality an anthropological concept often used to classify people according to physical characteristics, such as skin color, hair texture, eye color, facial features, and shape of head. As a classification system, no value judgment is ascribed to group differences. However, as a socially defined construct, race is often used as an "unjust, invalid standard upon which to generalize and draw conclusions about any one person or group of people" ([5], p. 9). Thus, the construct of race affords dominance and allocation of resources to one group to the detriment of the other. Singleton and Linton argue that what affects our relationships with each other is how we live race in America rather than what race means [5].

American history is steeped in the historical and moral ramifications of biases in relation to race. To understand racial bias is to study the history of race relations in the United States. While the definition of race is historically bound to physical features, the intermarriage and

immigration history of newcomers tend to invalidate classification and thus the allocations of resources to individuals based solely on physical characteristics. For example, how does one classify a mullato from the Dominican Republic using America's race classification system? Regardless of the complexity, American society continues to classify and allocate resources based on the Black/White dichotomy.

The Black/White Dichotomy

The Black/White dichotomy in the United States has had a long and rocky history dating back to the arrival of Northern and Western European settlers in the 1600s. This period was marked by attempts to exterminate the native population and the enslavement of Africans. The emerging social order elevated the status of Whites and subjugated that of non-Whites. White-skinned ethnic newcomers were encouraged to acculturate and assimilate to the dominant White structure. Whiteness was afforded a position of privilege and with it came full rights of citizenship. To further cement the great divide between the groups, non-Whites, especially enslaved Blacks were considered to be subhuman and were denied basic human rights. In fact, during slavery, the Constitution originally defined Blacks as three fifths of a person and stated it was illegal to educate them [7]. In the late 1800s it became evident to non-White immigrants that the meaningful classification in the United States was White and Black. Hence, Chinese, Japanese, Arabs, and Armenians, to name a few, have strived for the label of Whiteness in seeking to enjoy political, social, and economic benefits [4].

In the twentieth century, government sponsored privilege programs for Whites further widened the gap. For example, in Brodkin's essay on how the Jews became White, she documented how government sponsored GI bills enabled Jews to educate themselves and purchase homes in the suburbs in pursuit of whiteness. In addition, government sponsored programs provided loans to Whites, enabling them to move out of the low income neighborhoods and purchase homes in the suburbs, taking much needed capital out of urban communities. Additionally, she noted that the GI benefits provided educational and occupational opportunities to White males and were not extended to African Americans or women of any race [1]. Hence, it was against the backdrop of wartime racism and postwar sexism that shaped White male privilege [1].

Biases

As suggested earlier, racial bias is rooted in stereotype and prejudice. It is the belief and the enactment of beliefs that one set of characteristics or qualities is better or superior than another. Someone who interacts differently with one from another race, whether unconsciously or intentionally but based on racial differences, is said to be racist. The systematic allocation of resources to one group over the other is called racism. Singleton and Linton quote Pine and Hilliard who define racism as "the combination of individual prejudice and individual discrimination, on the one hand, and institutional policies and practices, on the other, that result in unjustified negative treatment and subordination of members of a racial or ethnic group. By convention, the term racism has been reserved to describe the mistreatment of members of racial and ethnic groups that have experienced a history of discrimination" ([4], p. 40).

While institutional biases may be easier to identify, individual biases tend to be more covert. Due to the advent of political correctness, researchers believe that overt racism has been replaced by a more subtle and ambiguous form of expression (i.e., aversive racism) [6]. Therefore, aversive racism theory contends that bias is the result of White people's ambivalent attitudes toward Blacks. This theory stipulates that although Whites believe in equality and fair play, they continue to have negative attitudes about Blacks that lead them to discriminate under certain conditions [2]. For example, in a recent study of racial bias in emergency medical situations, the researchers noted that as the need for medical attention increased, the speed and quality of help that White participants gave to Black victims relative to White victims decreased. In addition, White individuals interpreted a situation involving a Black victim as less severe and themselves as less responsible to help Black victims compared to White victims [2].

Biases have also been noted in education as numerous studies have documented the relationship between teacher expectations and student performance. In a recent meta-analysis investigating whether teacher's expectations differed based on group membership, researchers noted that teachers had more positive expectations, made more positive referrals, provided fewer negative referrals, and provided more positive speech for European American children than for African American or Latino/a children. In addition, teachers held higher expectations for Asian American students compared to European American children. Furthermore, teachers were less likely to refer students of color to gifted programs and more likely to refer them to special education programs [8].

In summary, racial biases are steeped in stereotypes and prejudices. They facilitate our interactions at the conscious and unconscious levels and are a byproduct of

our socialization experiences. It is the differential treatment of individuals based on faulty observations. In order to combat biases, we need to begin to unpack the privileges that are associated with the Black/White dichotomy.

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Bibliocounseling

▶Bibliotherapy

Bibliopsychology

▶Bibliotherapy

Bibliotherapy

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Synonyms

Bibliocounseling; Bibliopsychology; Book matching; Library therapeutics; Literatherapy

Definition

Bibliotherapy refers to the therapeutic use of books to help people cope with life changes, emotional difficulties, or mental illnesses. The purpose of bibliotherapy is to promote healing by providing guidance for solving personal problems through the use of books that are relevant to people's life situations and needs. Bibliotherapy is used to change affect and behavior, promote the development of coping skills, and enhance one's self-awareness and understanding through literature.

Description

History

The use of books as a treatment modality has a unique and long history. Some trace its origins as far back to the ancient Greek times, as seen by the inscription "The medicine chest of the soul" above the library door of Thebes. However, bibliotherapy did not start to gain recognition in the United States until the mid-1800s, when Benjamin Rush, MD, and John Minson Galt II, MD, incorporated books into their patients' treatment plans. In the 1920s, Sadie Peterson Delaney, the chief librarian of the United States Veterans Administration Hospital, used books to help with the treatment of African American war veterans who were experiencing psychological and physical difficulties. Dr. William C. Menninger, a renowned psychiatrist, also helped establish bibliotherapy as a form of treatment during the 1930s in his Kansas clinic. In 1941, bibliotherapy gained additional recognition when it was defined in the 11th edition of *Dorland's Illustrated Medical Dictionary.*

Since it was first introduced, bibliotherapy has been studied by individuals interested in mental health in an attempt to better understand its uses and effectiveness. Caroline Shrodes [8] was one of the first writers to address bibliotherapy from a philosophical perspective. Some of the earliest efforts to study bibliotherapy examined its implications for attitude change [4], reducing stress [1], reducing fears of children [10], and treating young drug abusers [2]. Although some studies suggest its ineffectiveness, bibliotherapy continues to gain popularity as a beneficial and practicable treatment technique among psychiatrists, psychologists, counselors, social workers, and other mental health professionals.

Overview

Although bibliotherapy has been used to help treat people of all ages, bibliotherapists have found it to be particularly useful when helping children. When choosing reading material, the bibliotherapist may consider the child's age,

level of maturity, and emotional and developmental needs. Selection of the material may also be based on the isoprinciple, meaning that the character of the story shares similar feelings and emotions to those of the child. The story character may also match the child in aspects of behavior and face events similar to those the child is facing.

When an appropriate book has been selected, it must be presented so that children are able to identify with the character. This is typically achieved when children recognize how they share similarities with the character. The next stage that generally follows is catharsis, which refers to the release of emotional tension children experience when they are able to relate to the character in the story. Once the child is able to internalize how the character resolved the issue, the child can reflect on the situation with more understanding and awareness, and this is referred to as insight.

Controversy still exists over which professionals are qualified to use this treatment with children. Some critics feel that this practice should only be undertaken by those who have an expertise with psychotherapy and related areas. Others feel that this practice can be safely used by people who have experience working with children, including teachers, librarians, and parents. Despite this debate, most will agree that bibliotherapy has numerous benefits including its ease of access, and its flexibility in application for people with varying problems and of different ages and backgrounds.

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Bicultural Identity

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Synonyms

Ethnic identification; Identity formation and development; Racial identity

Definition

The acceptance of both the dominant and home cultures that is within an individual's identity. The person is able to embrace values from the host and home cultures and engage in positive intercultural exchange.

Description

Berry [3] defined bicultural identity as the successful understanding and incorporation of two cultures contained by a person's self and consciousness; the individual is able to function appropriately and effectively in a multicultural context. Benet-Martinez et al. [1] suggested that the state and process of bicultural identify identification can be either harmonious or conflictual. Specifically, harmonious integration refers to consistent self and cognitive style that is in the same and parallel cultural context. In contrast, conflictual state is contradictory. In other words, the individual struggles with psychological distress between the host and home cultures; he or she has paradoxical and often inconsistent cognitive style and altered behaviors.

It is generally recognized that the course of bicultural identify is multidimensional. Research suggested that cultural identifications reveal various structures as well as magnitudes [7]. For example, when individuals immigrate from other countries, bicultural persons identify both with their primary and secondary cultures [2], however, the degree to which each individual identifies with host-home customs and values might be blended versus separated [1].

Similar conceptual framework regarding bicultural identity has been proposed from a sociological perspective. Previous research and theories suggested that people's subjective identifications often reflect their objective interpersonal processes and structures. Coleman [4] observed that an actor's relationships communicate a character both to self and others; nonetheless, Swann [6] indicated that there is a need for individuals to confirm their individual subjective identification through the negotiation of relationships with the environment and others.

Lastly, when discussing bicultural identity, it is crucial to understand the acculturation level of the person because acculturation was recognized as one of the most important variables in the studies of ethnic minority identity development. According to Helms and Cook [5], acculturation was related to the degree in which an individual accepted the values and attitude of one's culture in relation to the host or dominant culture. For example, many ethnic Americans went through the process of acculturation, however often failed to differentiate and navigate between home and host culture. Because acculturation is such a complex process, it may be quite difficult for people to meet and resolve differences in the expectations of often contradicting cultural values.

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Bicycle Accidents

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Synonyms

Bicycle unintentional injuries; Wheeled sports accidents

Definition

A bicycle accident is an unintentional injury that occurs to an individual while he or she is riding on a bicycle.

Description

Numerous factors could potentially cause a bicycle accident, including the behavior of the bicyclist, a pedestrian, another bicyclist, or the driver of a motor vehicle. For example, a rider who is engaging in risky behaviors such as taking his or her hands off while riding may accidentally fall. A pedestrian or another bicyclist who does not move out of the way of a bicyclist may cause the bicyclist to go off course and lose balance. The driver of a car or other vehicle may not see a bicyclist and accidentally hit him or her. Additionally, environmental factors, such as uneven pavement or the malfunctioning of a bicycle, can be responsible for a bicycle accident.

The outcome of a bicycle accident can range from scratches and bruises to orthopedic injuries such as a broken limb, to a traumatic brain injury, spinal cord injury or even death. Typically, an accident involving a motor vehicle results in the most severe outcomes, given that the mass and force of the vehicle is overwhelming compared to the mass and force of the bicycle and cyclist.

Relevance to Childhood Development

In the United States, in 2001 alone, approximately 315,000 children ages 14 years and younger were treated in hospital emergency departments for bicycle-related injuries [1]. Approximately 250 children and adolescents between the age of 5 and 19 are killed annually as a result of bicycle-related accidents. Children between 10 and 14 years of age have the highest rate of bicycle-related fatalities, and severe head injuries are responsible for 64–86% of these deaths [2]. These statistics illustrate the risk of a child experiencing a bicycle accident at some point during childhood. Of the possible outcomes of a bicycle accident, head injury is one of the greatest risks. Nearly half of all childhood bicycle-related hospitalizations are diagnosed as traumatic brain injury [3].

Various studies and meta-analyses have investigated the effectiveness of a variety of different programs aimed at preventing childhood bicycle-related unintentional injuries. Most studies have focused on programs to increase helmet use, since the use of helmets has been identified as the single best strategy to prevent head injury while riding a bicycle [4, 5]. In fact, helmet use reduces the risk of traumatic brain injury up to 88% [6]. However, many children do not regularly wear helmets, putting them at great risk for long-lasting cognitive deficits or death as a result of a head injury. Effective programs for increasing helmet use include educational interventions coupled with legislative campaigns and economic incentives for purchasing helmets [6]. Programs incorporating parental education and awareness, as well as changing peer

pressure to make helmet-wearing "cool," also showed effectiveness [7]. Additionally, research supports the positive influence of adults modeling helmet use to children [7].

Educational programs to improve riding behavior and safety have also been suggested in order to prevent childhood injuries while bicycling. Little research has been conducted to investigate the effectiveness of this prevention strategy. Of this limited body of research, some has actually shown harmful effects of such programs, indicating they might inadvertently increase risk taking bicycling behavior [8].

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Bicycle Unintentional Injuries

►Bicycle Accidents

Bigotry

►Prejudice

Bili-Lights

►Bilirubin Lights

Bilingualism

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Definition

Bilingualism is the ability to use two languages.

Description

Bilingualism results from prolonged exposure to and/or formal instruction in two languages. An individual is typically referred to as bilingual if he or she can understand and speak (or produce language in another form, i.e., in the case of a sign language) two languages fluently. Simultaneous bilingualism is the development of fluency in two languages at the same time, whereas sequential/consecutive bilingualism is the development of fluency in a second language after fluency in a first language has been reached. Multilingualism generally refers to the ability to speak and understand two or more languages.

Individuals may develop bilingualism for a variety of reasons: exposure from an early age to two languages because of caregivers' diverse primary languages or residence in a multilingual society; primary exposure to one language at home throughout childhood and formal instruction in another language as a child or adult; relocation for an extended time to another country or region that uses a different language than the individual; etc. The social, cultural, economic, political, and/or individual reasons for prolonged exposure to more than one language influence the development and maintenance of bilingualism [1–3].

Relevance to Childhood Development

Research has shown that bilingual children with proficiency in both languages tend to have better developed metalinguistic skills such as analyzing their knowledge of language and exhibiting greater control of internal language processing, as compared to both monolingual children and bilingual children who are less proficient in one or both languages [4]. More common, however, is an imbalance in the proficiency of the two languages for

children who learn two languages sequentially or use a minority language at home and a majority language at school and in their community.

The term bilingual education is used differently throughout the world. In the United States, for example, bilingual education typically refers to educational programs for children whose first language is not English and such programs do not necessarily have bilingualism as a goal [1]. Transitional bilingual education in the U.S. is an educational approach in which students are instructed in their primary, minority language for a limited time until they have reached sufficient proficiency in English to receive English-only instruction. Such programs are referred to as *early-exit* programs if students receive bilingual instruction for 2 years or less and *late-exit* if students receive bilingual instruction for most or all of their elementary school years [3]. Structured English immersion is an instructional approach designed for students with limited English proficiency to develop proficiency in English and benefit from academic content instruction in English. It does not have bilingualism as its central goal. Two-way/dual immersion bilingual education in the United States has as its goal the development of balanced fluency in two languages and typically includes both children who have the majority language (i.e., English) as their primary language and children whose primary language is the other focal language of the program (e.g., Spanish) [4]. Heritage language education, or developmental maintenance education, is designed so that students whose primary language is a minority language can maintain knowledge of their home language [4]. Longitudinal research has demonstrated that bilingual education programs that provide students with more than 40% of their instruction in their primary language for an extended period (i.e., late-exit transitional bilingual education) are associated with faster growth rates in academic achievement and similar growth rates in English language proficiency as compared to programs that quickly transition students to English-only instruction (e.g., structured English immersion and early-exit transitional bilingual education) [5].

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Bilirubin Lights

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Synonyms

Bili-lights; Phototherapy

Definition

A phototherapy treatment that involves the use of bilirubin lights, which are high intensity lights in the invisible spectrum to treat neonatal jaundice.

Description

Bilirubin lights, a type of phototherapy is utilized when a neonate suffers from hyperbilirubinemia. Hyperbilirubinemia (commonly known as jaundice) displays a yellowish pigmentation to a newborn's skin, which progresses cephalad to caudad with the eyes affected last. This is caused by excess levels of bilirubin in the neonate's blood. Bilirubin is a product of red blood cells that have previously broken down [4]. Bilirubin in the blood is bound to albumin, a blood plasma protein. If the amount of bilirubin exceeds the level of albumin to which it is able to bind, the remainder is unconjugated and can pass through the blood brain barrier. The probability of passage is increased particularly with metabolic acidosis, sepsis and meningitis. If untreated, severe hyperbilirubinemia can result in Kerinicterus (bilirubin in the brain), which may result in neurotoxic effects which can include one or more of the following; cerebral palsy (particularly athetoid cerebral palsy), paralysis of upward gaze, hearing loss, intellectual impairment, seizures and death [2].

The use of bilirubin lights for the treatment of hyperbilirubinemia is common practice and highly effective within hospitals. The use of bilirubin lights as a home-based phototherapy treatment is also common. The bilirubin molecule reacts to the wavelength of the light. The absorption of the light results in three photochemical reactions; configurational isomerization, structural isomerization and photo-oxidation. The configurational isomer is excreted slowly, while the structural isomer, lumirubin, becomes water soluble and does not need the liver's assistance for excretion [3].

Bilirubin lights have come in white, blue and green colors. More recently, studies have shown that a turquoise colored light decreases bilirubin levels efficiently with fewer side effects [1]. Side effects resulting from phototherapy are hyperthermia, dehydration and irritation of skin. These side effects are preventative by close monitoring from the medical staff.

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Billboards

►Media

Binet, Alfred

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Life Dates

1857–1911

Introduction

Alfred Binet was a French child psychologist who played a dominant role in the development of experimental psychology, and who made fundamental contributions to the measurement of intelligence. As a member of the French commission investigating educational concerns, his principal goal was to identify students who needed special help in coping with school curriculums [2]. For this reason, Binet developed the first modern intelligence test, the *Binet-Simon Scale*, in 1905. His intelligence scales have since inspired and influenced the development of intelligence tests across America and Europe [3, 7].

Educational Information

Binet attended law school in Paris and received his law license in 1878. He was a self-trained psychologist from reading of the works of major thinkers of the time, especially English associationists such as John Stuart Mill, Hebert Spencer, and Alexander Bain [7]. In 1883, Binet started working in Jean-Martin Charcot's laboratory at a well-known hospital in Paris, the Salpetriere. During this time, he co-authored a paper arguing that the use of magnets could impact hypnotic states. This suggestion met considerable criticism, and Binet retracted his claim in print [2, 3].

Binet gradually resurrected his reputation by becoming an unpaid research assistant at the Laboratory of Physiological Psychology at the Sorbonne in Paris in 1981. He was named a director of the laboratory 3 years later, a position he held until his death in 1911. Binet was also a member of the Commission on the Education of Retarded Children, appointed by the French Ministry of Public Instruction in 1904 [2, 3].

Accomplishments

During his years at the Sorbonne, Binet developed a program of research that focused on individual differences in human intelligence and cognition. Working with his assistant, Victor Henri, Binet described *individual psychology* as a branch of science concerned with individual differences in cognitive processes [2, 6]. In order to measure individual differences, Binet developed various tests of mental abilities, which served as the groundwork for his intelligence scales. Along with his colleague, Theodore Simon, Binet developed multiple sets of tasks that were able to differentiate between normal and intellectually impaired children.

These tasks were published as the *Binet-Simon Intelligence Scale* in a French academic journal *L'Anneé Psychologique* in 1905 [6]. Binet and Simon revised the scales in 1908 and again in 1911. The third revision of the Binet-Simon Scale contained 58 different tests and the tasks were arranged within 11 different age groups, or *age levels*. Binet believed that intellectual abilities and skills should be described through age-based comparisons. The level at which a child scored was referred to as the *mental level* ([2]). The third revision of the *Binet-Simon Intelligence Scale* was the last French version of the test, and after Binet's death, progress in intelligence testing shifted to the United States. In fact, Binet's work soon became more popular in the United States than in France [6].

Binet's tests were translated from French and presented to American psychologists in 1908 by Henry Goddard. Goddard called this version of the test the *Binet-Simon Measuring Scale for Intelligence*. Goddard

used the test to identify and classify children with lower than average intellectual abilities. Although his version of the test became accepted and used by others, the *Binet-Simon Measuring Scale for Intelligence* was soon overshadowed by another version of the Binet-Simon test published in 1916 by Lewis M. Terman [2, 3]. Terman not only translated the third version of the Binet-Simon assessment tasks, but also revised, standardized, and normed the test using about 2,300 participants. Terman named his version of the scale the *Stanford-Binet Intelligence Scales*, after the university with which he was affiliated [5, 7]. The *Stanford-Binet Intelligence Scales* contained the concept of *intelligence quotient* (*IQ*), which represented the relationship between the mental and chronological age [2]. The Stanford-Binet tests have undergone several revisions and continue to be widely used. The latest edition of the scales was published in 2005 as the *Stanford-Binet Intelligence Scales, Fifth Edition.*

Contributions

Throughout his career, Binet authored almost 300 books, articles, and reviews that dealt with a broad variety of cognitive phenomena. Although his contributions to the field of psychology are often associated with the concepts of mental level and IQ, Binet's work also became instrumental in understanding human intelligence, child development, and memory [4]. Binet's scales embodied a number of ideas that still are still relevant today, including the notions that the best way to understand unusual performance is with regard to typical performance, intelligence is not a unitary trait but is composed of multiple processes that need to be measured and considered separately, and that a useful composite estimate of intellectual development can be created based on multiple samples of specific cognitive processes. In addition, Binet's 1905 test was the first objective measure of cognitive functioning in children and adults. Since he was highly skeptical in regard to subjective assessment methods and often noted that parents and teachers tend to be biased and inaccurate in their reports of students' intellectual abilities, Binet became an active advocate of objective and standardized assessment methods in public schools [4].

Although viewing cognitive assessment as preferable to subjective evaluations, Binet was aware that objective intellectual testing posed numerous shortcomings. For example, Binet pointed out that his tests were not an absolute measure of intelligence, but only yielded an ordinal classification in which the measure of intelligence was relative to that of other individuals of the same age [4]. At the same time, he pointed out that a multitude of factors other than intellectual ability could impact performance on cognitive assessments including the testing environment, mental fatigue, cognitive style, and physical health of children [2–4].

A substantial part of his research and work was devoted to children. His work included child mental processes and cognitive development. Although he did not believe in discrete stages of development, his methodological approach and findings resemble those reported by Piaget [4]. Binet believed that cognitive development is a constructive process, and the purpose of development is adaptation to the social and physical environment. Binet also suggested that children assimilate new knowledge into existing ways of thinking; yet, he believed that the cognitive processes of children and adults are different. For example, he noticed that children tend to be less abstract and objective in their process of analyzing and understanding their environments [4].

Binet also contributed to understanding memory and argued for the existence of different types of memory, and noticed that children are better at recalling ideas than isolated words [6]. Binet also pioneered the research on the validity of children eyewitness testimony, and found the accuracy of the recall is dependent upon the particular wording of questions. Binet reported that when children were asked what they had seen, they made fewer but more accurate observations than children who were asked specific and detailed questions. His research in this area is the first evidence for the impact of suggestibility on children's recall and memory [1].

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Binge Eating Disorder

►Eating Disorders

Binge/Purge Eating

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Synonyms

Bulimia; Bulimia nervosa

Definition

Binge/Purge eating is the diagnosis that describes the behaviors of ingesting large quantities of food (more than most people would believe to be acceptable) and then eliminating this food from the body using unhealthy and inappropriate means such causing one's self to vomit, exercising excessively, abusing laxatives or abusing diuretics.

Description

Eating, stress and obesity among both adults and children have been greatly studied during the past few years in North Americans. Among the eating patterns studied in great detail has been that of binge/purge behaviors. Binge/Purge Eating, or bulimia nervosa, is one diagnosis in a group of conditions identified as eating disorders. These conditions describe inappropriate management of food with a basis in the mental health, or psychology, of the afflicted person. Related conditions such as anorexia nervosa (restrictive eating patterns) [3], binge eating disorder (excessive consumption of food without inappropriate compensatory behaviors) [3], orthorexia (dangerous, unhealthy obsession with eating healthy foods) [7] and bulimarexia (fluxuation between restrictive eating patterns and the binge/ purge eating cycle) are often linked to bulimia nervosa. Despite the various identified categories of eating disorders, the American Psychiatric Association formally recognizes only anorexia nervosa, bulimia nervosa and eating disorder Not Otherwise Specified [3]. Most researched sufferers of bulimia nervosa are females in late adolescence [3]. In recent times there have been younger boys and girls who report binge-purge behaviors, children from various socioeconomic backgrounds, and multiracial presentations of eating disorders [20, 21, 24]. Children and adolescents of diverse backgrounds can be impacted [10, 15, 16].

History

The term Bulimia Nervosa comes from Latin and translates as "ox hunger due to nerves" [5]. The diagnostic criteria for the disorder include recurrent, uncontrollable eating binges followed by purging food at least two times per week for a period of at least 3 months [3]. The ways in which people purge include self-induced vomiting, excessive exercise, diuretic abuse and laxative abuse to compensate for food intake [3]. People who engage in binge/purge eating often gauge their personal worth in a way that is very heavily influenced by their body shape and weight [27]. In order to receive the diagnosis Bulimia Nervosa, the patient may not have an existing diagnosis of Anorexia Nervosa [2, 3].

Some scholars have traced documented binge/ purge behavior back to ancient Roman aristocracy. At festivities some guests consumed and eliminated large quantities of food by vomiting in structures known as "vomitoriums" [5]. This elimination would relieve them of their physical discomfort and enable them to continue eating more food. There was, however, not necessarily a psychological basis for this behavior. Today, Bulimia Nervosa occurs in 1–3% of adolescent and young adult females in the United States [3]. While most reported sufferers are female it is known that bulimia nervosa has similar prevalence rates across race and socioeconomic status (SES) [18]. People from various educational levels and sexes are also impacted with about 10% of reported sufferers being identified as male [14].

Bulimia and Anorexia Similarities

Although there are some distinctly different characteristics, Anorexia Nervosa and Bulimia Nervosa were considered separate aspects of a similar disorder until the publication of the Diagnostic and Statistical Manual of Mental Disorders III-Revised (DSM 111-R) [1], where they were reclassified as separate disorders. This change followed the published research of Dr. Gerald Russell [23] who detailed discrepancies between the two disorders and therefore coined the term "Bulimia Nervosa" [5]. They are now identified as discrete, yet related, illnesses [26]. Contemporary researchers have attempted to further extend the gap between Bulimia Nervosa and Anorexia Nervosa by identifying a characteristic profile of sufferers [8]. The profile of a person who has Bulimia Nervosa is that of low self-esteem, excessive anxiety, exhibition of self-doubt and a notable degree of helplessness [8]. They also may have strong impulse control problems, may be sexually promiscuous and demonstrate chaotic eating patterns that often mirror their perceptions of their lives [12]. It is important to keep in mind that the *perception* of stressors and personal feelings of self-worth can be a predominant factor in the psychological etiology of bulimia nervosa.

Controversy lingers regarding the APA's distinctions between Bulimia Nervosa and Anorexia Nervosa in the

DSM as separate conditions [6, 26]. One reason for the controversy is that the name "bulimia" does not capture the underlying emotions, thoughts and feelings associated with this disorder [26]. Although many of the women and girls diagnosed with Bulimia Nervosa have many of the same underlying issues, they are of average or above average weight. This distinction sets them apart from people who exhibit symptoms of binge/purge-type Anorexia Nervosa [3] and the life-threatening nature of the condition may be thru minimized. Further, they often feel out of control and may be more likely to seek support for their eating problem than those who suffer from other eating disorders, particularly Anorexia Nervosa [26]. Those who have Bulimia Nervosa tend to be more notably distressed about their binge and purge behavior and see it as a problem [3]. The concern about their purging also sets them apart from those who have Binge Eating Disorder.

Children, Health Consequences and Treatment

The binge/purge behaviors of bulimia nervosa have been linked to several serious health conditions in children and adolescents. Because children are increasingly facing disordered eating patterns and reporting eating as a coping mechanism in reaction to stressors understanding the health consequences of these behaviors are important [13]. It has been documented that one of the stress-releasing aspects for those who engage in binge/ purge behaviors is the numbing effects of binge eating [25] and the release of purging [21]. These behaviors, in children and adults are not without health consequence.

Stomach and esophageal ruptures can be caused by extreme overeating while vomiting, bowel problems and chemical (electrolyte) imbalances can result from laxative abuse. Other complications, such as cardiac problems, dental erosion, dorsal scarring on the fingers, metabolic changes, specific types of ulcers and rare forms of esophageal cancer are also associated with Bulimia nervosa [11].

Effective treatment of eating disorders is best served using a multidimensional effort [9]. In particular the multidimensional approach is useful for children with family support being an imperative component of the regiment. While a combination of individual, family and group therapy has shown to be most effective [4] the Maudsley Method has demonstrated success with younger eating disorder sufferers [19]. Further, while cognitive behavioral techniques have proven to have strong, positive outcomes with children [21], interventions such as Dialectical Behavioral Therapy (DBT) and pharmacotherapies have also shown promising results and may be considered. Clinicians and researcher have also become increasingly aware of counter-therapies, often websites promoted on the internet as "Ana-Mia" groups that may actually provide "tips" about how to maintain the illness and avoid detection [17]. Further they provide a community of support for those who want to increase the severity, and thus lethality, of their condition.

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Bingeing

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Definition

The consumption of large amounts of food while experiencing a lack of control over eating. Bingeing; is a psychiatric disorder in which a subject shows the following symptoms: Periodically, does not exercise control over consumption of food, eats an unusually large amount of food at one time-more than a normal person would eat in the same amount of time, eats much more quickly during a binge episode than during normal eating episodes, eats until physically uncomfortable, eats large amounts of food event when they are not really hungry, usually eats alone during binge eating episodes, in order to avoid discovery of the disorder, often eats alone during periods of normal eating, owing to feelings of embarrassment about food, feels disgusted, depressed and guilty after binge eating [2].

Description

Diagnostic criteria include: recurrent episodes of binge eating, which are characterized by (1) Eating a larger amount of food than normal during a short period of time (within a 2 h period), (2) Lack of control over eating during the binge episodes (i.e., feeling that one cannot stop eating). B. Binge eating episodes are associated with three or more of the following: (1) Eating until feeling uncomfortably full, (2) Eating large amounts of food when not physically hungry, (3) Eating much more rapidly than normal, (4) Eating alone because you are embarrassed by how much you're eating, (5) Feeling disgusted, depressed, or guilty after overeating, (6) Marked distress regarding binge eating is present, (7) Binge eating occurs, on average, at least 2 days a week for 6 months and the binge eating is not associated with the regular use of inappropriate compensatory behavior (i.e., purging and excessive exercise) and does not occur exclusively during the course of bulimia nervosa or anorexia nervosa [1].

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Bioecological Approach to Development

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Synonyms

Bronfenbrenner's theory; Ecological theory; Multisystemic influences

Definition

Urie Bronfenbrenner's Bioecological Approach to Development emphasizes the complex interactions between multiple systems of influence on individuals' development. These influences range from biological, individual, family, peers, and media, to cultural and historical forces that impact how we change over time.

Description

Bronfenbrenner's Ecological Theory [1] is considered by many to be one of the most important organizing frameworks in the field of developmental psychology. This perspective emphasizes the individual's interactions within a series of larger systemic influences, from family, peers, neighbors and teachers, to schools, media, institutions, culture, and the relative "chronosystem," or time period of development.

In light of recent neuroscience and behavior genetics research illustrating the importance of biological influences on human interactions in families, Bronfenbrenner further refined his theory [2] to include these pivotal findings. This *bioecological* approach takes into account that we are both biological and social beings. This

perspective has changed the way most scholars in the field of human development view the complex interplays between neurons in the brain, hormones and neurotransmitters, inborn personality traits, parental socialization of children, and larger media, religious, and contextual and cultural forces. Only when one considers these overlapping and inseparable forces together, can a true understanding emerge regarding how modern families develop in such diverse ways across the globe.

In brief, the systems of influence are depicted as an individual situated in the center of consecutively larger concentric circles. The most immediate and direct system of influence on the person is the *microsystem*, which includes people like parents and peers. The next larger circle is the *mesosystem*, which consists of interactions between those in one's microsystem. For example, if a child's parent dislikes a child's peer, the parent may disparage or scold this peer, leading to the peer's hostility toward the child. This interaction in the mesosystem adds another layer of influence onto the child's development, beyond what either member of the microsystem would have alone. The third layer is the *exosystem*, a circle consisting of indirect influences. The child may not come into contact with these influences, but they impact development indirectly, usually through members of the microsystem. For example, a mother's employer may keep her late so that she is not available for the child in the evenings. This indirect influence impacts the parent-child relationship. Finally, there are the *macro* and *chrono* systems, which consist of larger cultural and time-period influences. Examples include living in a racist country, or a democracy, and living during the time of the Great Depression. For a visual depiction of this model, please see https://blogs.wharton.upenn.edu/staff/remurphy/WindowsLiveWriter/MovingTowardsaSystemicViewofLearning_AAB9/image025_2.jpg

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Bioecological Systems Theory

►Bioecological Theory of Development

Bioecological Theory of Development

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Synonyms

Bioecological systems theory; Ecological systems theory; Ecological theory of development; Ecological-transactional model of development

Definition

The bioecological theory of development was formulated by Urie Bronfenbrenner and posits that human development is a transactional process in which an individual's development is influenced by his or her interactions with various aspects and spheres of their environment.

Description

A systemic view of development, this theoretical perspective goes beyond consideration of developmental processes occurring within the child and his or her immediate environment to describe several interacting systems that impact child development. Within the frame of the bioecological theory, Bronfenbrenner defines development as "a lasting change in the way in which a person perceives and deals with his environment" [3, 4]. Development can further be defined as an individual's "evolving conception of the ecological environment and his relation to it, as well as the person's growing capacity to discover, sustain, or alter its properties" [4, 1].

The environment in which a child grows and develops is conceptualized as a network of ecological subsystems. The subsystem most proximal to the child (*microsystem*) includes factors such as biological or innate characteristics of the child and caregiver(s), factors associated with the home in which the child resides, and the attachment the child and caregiver share. Relationships and interactions between settings in which a child functions (such as the home, school, and/or church) are referred to as the *mesosystem*. Interactions between settings in which a child is an active participant can influence the manner in which a child functions and develops within each individual setting. The development of a child is also influenced by events that take place in settings in which the child does not actively participate (*exosystem*). Although these events may not directly impact the child, they impact the settings in which the child is developing and thereby indirectly

impact the child. Furthermore, the culture, society, and belief systems that exist within the overarching social framework the child exists in (*macrosystem*) also have effects. Finally, a child's development is impacted by the factor of time; the child and environment in which he or she grows both change over time (*chronosystem*) [5]. Relationships among the network of systems a child exists in also change over time and these changes influence the child and the manner in which he or she develops. Thus in order to understand a child's development, one must understand the underlying factors that influence how development occurs.

A number of fundamental concepts further capture and describe how development occurs. Inherent in Bronfenbrenner's bioecological theory is the concept of *experience*. The concept of experience is the notion that it is not only the events that take place in an individual's environment that impact his or her development, but also how he or she experiences these events. Therefore, development can be thought of as being influenced by objective factors (the events that take place in the environment) and subjective factors (experiences and feelings such as hopes, fears, anticipation, anxiety). Also underlying the theory is the notion that "human development takes place through processes" of interactions between the individual and events in his or her environment [4, 7]. Bronfenbrenner posits that in order for interactions between the individual and his or her environment to effectively influence development, the interactions must occur on a regular basis over an extended period of time. These interactions are the primary driving force of human development. Furthermore, factors such as the power and direction the interactions have on development, along with the direction in which the influence occurs, vary depending on the characteristics of the individual and the environment. Additionally, in order for development to occur, the child must experience and participate in activities that progressively increase in complexity. This must further occur regularly over an extended period of time and must occur with a caregiver or other individual "with whom the child develops a strong mutual emotional attachment, and who is committed to the child's well-being and development" [4, 1]. An additional and important underlying concept of this theory is that the child internalizes the affection and positive regard of the parents as a function of the strong and mutual emotional attachment he or she shares with them. It is these internalizations that serve as vehicles for the child's motivation to engage in various aspects of the environment – fueling development. Each of these underlying concepts and the interactions between them fuel child development and are important factors of consideration in understanding the process of development overall.

Bronfenbrenner's bioecological theory of development has influenced the manner in which many childhood processes are understood. For example, in the context of child maltreatment, the bioecological theory of development provides a framework through which the processes and consequences of child maltreatment may be understood. Through this framework, the effects of child maltreatment as they relate to the child's social, academic, emotional, and behavioral functioning can be understood. Additionally, and often of great importance, is that this theory provides a lens through which to consider characteristics within the child, caregiver, and environment that influence and are influenced by child maltreatment.

The bioecological theory has also provided a foundation for the development of various forms of therapy. For example, Multisystemic Therapy as a treatment approach to serious emotional and behavioral problems in youth is rooted partly in Bronfenbrenner's theory of development [6]. By understanding how these behaviors develop through events that occur in various subsystems of a child's environment, clinicians are able to develop relevant treatment approaches in an effort to treat the child's difficulties in each sphere of his or her functioning [2, 8].

Relevance to Childhood Development

The environment and social structure children are growing up in today is drastically different from what it once was. A child's upbringing was once primarily handled by the parents; however, today, children spend less time with parents and more time in the context of other adults and same-age peers. Therefore, the characteristics of these individuals have more influence on a child's development in today's society than they once did. Additionally, our society as it currently functions is experiencing a significant degree of crime, community and world violence, school failure and, disruptions in parental subsystems. It is safe to say that these components of our society greatly impact the development of a child in a multitude of ways. Therefore, in order to mitigate the negative impact these factors may have on child development it becomes important to first understand the ecological factors that impact development. This knowledge and relevant research can then be shared with policy makers and citizens of our society to improve developmental outcomes and to help children reach their full potential.

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Biofeedback

Definition

A process that enables an individual to monitor and learn how to alter physiological activity to help improve health or physical performance using instruments that measure physiological activity such as heart function, breathing, brainwaves, muscle activity, and skin temperature.

Description

Biofeedback gives people tools to use their own thoughts to control their body, and is often used as a relaxation technique. It helps improve physical performance, and treats and monitors a number of health conditions including, anxiety/stress, headaches, asthma, chemotherapy side effects, heart problems, high blood pressure, constipation, incontinence, pain, irritable bowel syndrome, and Raynaud's disease. Further, studies have shown that it may be effective in treating attention deficit/hyperactivity disorder (ADHD), autistic spectrum disorders (ASD), posttraumatic stress disorder, seizures, depression, and brain injury.

The most common sensor modalities of biofeedback are as follows:

- Electromyography (EMG)- detects muscle action potentials
- Feedback thermometer- measures skin temperature
- Electroencephalography (EEG)- detects electrical activation in the brain
- Photoplethysmograph (PPG)- measures relative blood flow
- Electrocardiography (ECG)- measures electrical activity of the heart
- Pneumograph- measures the relative expansion and contraction of the chest and abdomen
- Capnometer- measures breathing quality, especially carbon dioxide levels
- Hemoencephalography (HEG)- measures blood flow in the brain

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Bipolar Disorder

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Synonyms

Manic-depressive illness

Definition

Bipolar Disorder is a mood disorder characterized by the presence of one or more episodes of abnormally and persistently elevated, expansive, or irritable mood (mania).

Description

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (American Psychiatric Association; DSM-IV-TR) differentiates between four different types of Bipolar Disorder: Bipolar I, Bipolar II, Cyclothymia, and Bipolar Disorder Not Otherwise Specified (BD-NOS). Differential diagnosis is dependent upon the various combinations of mood states the individual has experienced. Bipolar I Disorder requires the presence of at least one Mixed or Manic episode during a person's lifetime. Individuals diagnosed with Bipolar I Disorder also have had one or more Major Depressive episodes. Manic and mixed states require that the change in an individual's

behavior causes marked impairment much of the day for most days over a period of 1 week, or the disturbance is extreme enough to result in psychiatric hospitalization. A diagnosis of Bipolar II requires the presence of a Major Depressive Episode and a Hypomanic episode. Although hypomania typically is more subtle than mania, the primary distinction is that the hypomanic disturbance persists throughout at least 4 days and is not severe enough to require psychiatric hospitalization. Cyclothymia Disorder is identified by a chronic, fluctuating mood disturbance with many of the symptoms of hypomania and depression; however, the symptoms are insufficient in number, severity, or duration to meet the criteria for a Major Depressive or Hypomanic episode. The Bipolar Disorder NOS category describes clinical presentations with bipolar features that do not meet full criteria for one of the other conditions.

Relevance to Childhood Behavior/ Development

Identifying children with Pediatric Bipolar Disorder (PBD) has increased in prevalence over the past 10 years and a growing body of literature has emerged focusing on the identification of the characteristics of PBD to assist clinicians in making a differential diagnosis [2, 3]. Although these studies have increased understanding of PBD, there remains considerable debate regarding the diagnostic features of children with PBD. Therefore, there remains need for research that would enhance diagnostic accuracy as well as help in better understanding the overlap of symptoms with other disorders. It is likely many mental health professionals experience difficulty in accurately differentiating PBD and may be at risk of either misdiagnosing or underdiagnosing the disorder.

Within the past 10 years, there has been a growing body of published research focused on identifying the characteristics of PBD to assist clinicians in making a differential diagnosis. Although the onset of BD in mid- to late-adolescence is considered to be similar to that of adult BD, the diagnostic characteristics of BD during the prepubertal and early adolescence phases of development is a matter of debate [2]. Like the adult expression of the disorder, PBD involves episodes of mania and depression. However, whereas mood changes in adults with Bipolar Disorder often are expressed as a euphoric or sad mood, manic and depressive moods in children often are expressed differently. In children, a manic episode may be defined as either a distinct period of excessively elevated (i.e., inappropriately happy) or irritable (i.e., excessive temper tantrums, rages out of proportion to events) mood, or both [3]. The National Association of School Psychologists (NASP) criteria for "altered mood" requires identifying three or more symptoms [3] including: (a) inflated self-esteem (e.g., child thinks she is smarter than everyone else despite failing grades); (b) grandiosity (e.g., a child believes and tells others he is able to run faster than a car); (c) decreased need for sleep (e.g., a child claims to be rested after a few hours of sleep); (d) rapid, loud, or uninterruptible speech; (e) racing thoughts, increased distractibility, increased goal-directed activity/psychomotor agitation (e.g., a child starts to rearrange the school library, cleans everyone's desks, and plans to build an elaborate tree house in the backyard, but never finishes any of these projects); and (f) excessive involvement in pleasurable or dangerous activities (e.g., a previously mild-mannered child writes offensive notes to other children in class or attempts to jump out of a second story window. An episode of depression is defined by NASP as a distinct period of sad or irritable mood or markedly diminished interest and/or pleasure in most activities. This period of depression includes four or more of the following symptoms: (a) significant appetite change; (b) sleep problems; (c) restlessness or slowed movement, (d) fatigue; (e) feelings of worthlessness or excessive guilt; (f) problems concentrating; and (g) recurrent thoughts of death and/or recurrent suicidal thoughts, plans or attempts.

In 2001, the National Institute of Mental Health Research Roundtable on prepubertal Bipolar Disorder promoted the idea that pediatric BD can present in "narrow" and "broad" phenotypes [4]. The narrow type is marked by recurrent periods of depression and mania or hypomania and fits the classic definition of BD as described in the DSM-IV-TR. Children also experience multiple episodes with rapid cycling and have symptomology that is influenced by the child's developmental stage. It is believed that despite having classic symptoms of hypomania or mania, most children fail to fulfill the criteria for duration of 4–7 days, respectively. In this case, the diagnosis of BD-NOS is to be applied and serves to accommodate children with severe affective instability. The broad phenotype constitutes the majority of the referrals to clinicians. Symptoms include severe irritability, mood lability, severe temper outburst, symptoms of depression, anxiety, hyperactivity, poor concentration, and impulsivity with or without clear episodicity. The idea that there is a spectrum describing PBD, including broad and narrow types, is gaining consensus. The phenotyping model is viewed as "critical" in helping researchers as well as clinicians determine variables related to psychopharmacology, neurophysiology, treatment response, and prognosis. However, consensus is not yet

universal and clinicians should be aware that researchers often use different sets of diagnostic criteria to define PBD.

Unlike adults with BD, children with mania typically do not manifest euphoria, but severe irritability [5]. Without the typical manic presentation, clinicians may erroneously attribute a child's emotional outbursts and belligerence to psychosocial factors or behavior disorders. Not only must clinicians differentiate PBD from more common childhood disorders but they also need to consider whether behaviors (e.g., playing, activity levels, rate of speech) are consistent with those displayed by normal children and adolescents [2].

In addition to the debate on core symptoms and the presence or absence of episodes, there also is the definition and role of "cycling" to be considered. In contrast to adults, who are more likely to present with discrete cycles of depression and mania, it is believed children with BD may exhibit both manic and depressive symptoms at the same time or within the same day [2]. Instead of being episodic or acute in course, as is the case with most adults, pediatric BD tends to be chronic and continuous, which makes identifying discrete episodes very difficult; however, this does not mean that on occasion children will not demonstrate similar syndromal characteristics observed in adults with BD. Geller and colleagues coined the term "complex cycling" [6] to describe the presence of short cycles embedded within a more prolonged cycle or episode. Mood shifts in children are currently characterized by mixed states (i.e., simultaneous manic and depressive symptoms), rapid cycling (i.e., four or more mood episodes per year), ultra-rapid cycling (i.e., more than four mood episodes per year), and ultradian cycling (i.e., multiple episodes per day, requiring more than 4 h of mania per day).

It is difficult to estimate prevalence of PBD due to the paucity of national (or international) epidemiological studies to determine the prevalence in the pediatric population [4]. For adults, the lifetime prevalence is estimated to be 0.8% [1]. Studies of the prevalence rates for adolescents are similar to adults and have ranged from 0.7% to 1.41%. Retrospective studies in adults with BD have reported as many as 60% experienced the onset of their BD before 20 years of age, and 10–20% reported the onset before 10 years of age. Given the reluctance of clinicians in the past to diagnose children with BD, it is likely the prevalence rate has been underestimated historically. In addition, understanding prevalence is made all the more difficult by the disorder's diagnostic complexity.

Because of overlapping symptoms with other psychiatric disorders, it often is difficult to differentiate PBD from other childhood problems. Rates of comorbidity vary according to the age of the child, sample selection, and methods used to ascertain the symptomatology. In a review of research on rates of comorbidity of PBD with other disorders, it was reported that rates ranged between 11% and 75% for ADHD, 46.4% and 75% for ODD, 5.6% and 37% for CD, 12.5% and 56% for anxiety disorders, and 0% and 40% for substance abuse disorders [4].

In particular, diagnostic confusion exists because of the similarity between PBD and ADHD. Symptoms such as impulsivity, hyperactivity, irritability and distractibility are shared by both disorders [7], whereas the presence of grandiosity, elated mood, flight of ideas, hypersexuality, and decreased need for sleep are more common to PBD. The ease of misdiagnosis is highlighted by the work of Biederman and colleagues [8] who found that 96% of children who met the criteria for BD did so for ADHD; however, only 16% of ADHD patients met the criteria of mania/hypomania. Similarly, in another study it was reported that of children presenting bipolar symptoms, approximately 90% of prepubertal and 30% of adolescent subjects were classified as ADHD. This significant comorbidity makes prognosis and treatment all the more difficult for children with BD. However, differentiation is not impossible. For example, it has been suggested that the two disorders can be distinguished by examining the history of the child to determine the persistence and earlier onset of ADHD versus the lack of euphoria or depressed mood of pediatric PBD. Children with BD also may be more irritable compared to children classified with ADHD.

The differential diagnosis between pediatric BD and conduct disorder (CD) also can be difficult due to the overlap in symptomology. Outbursts of anger, antisocial behavior, substance abuse, hypersexuality, and adolescent turmoil often are associated with PBD and misdiagnosed as CD [9], although there are instances of comorbidity too. The diagnostic history may reveal a sudden onset of severe behavioral disturbances with pediatric BD whereas with conduct disorder the duration of disturbances may have been evident over several years. A further possibility for delineation lies in determining the nature of the troubling behaviors. Mischievousness and not vindictiveness distinguishes a manic child's behavior from one who has conduct disorder, whose behavior is typically more hurtful of others. Additionally, children with conduct disorder typically do not have psychotic symptoms, push of speech or flight of ideas as do children with mania.

Children and adolescents with BD often present with significant cognitive deficits that may adversely affect school functioning. Compromised academic functioning in PBD has resulted in the increased use of special

education services [10]. It has been estimated the incidence of math and reading difficulties in PBD to be approximately 30–40% and that children with PBD have lower full scale IQ and lower Wide Range Achievement Test (WRAT) Arithmetic percentiles and WRAT/Gilmore Reading standard scores compared with children with ADHD and no disorder [11]. Little is known about the cause of these learning difficulties in children with PBD. Learning disabilities and complications in executive functioning in children with PBD may not simply be secondary symptoms of the disorder, but may provide anatomical clues related to the causes of the disorder. Either way, children with PBD are expected to have learning difficulties related to cognitive functioning and will need appropriate educational accommodations.

As with adult BD, psychopharmacological treatment is considered by many as the first line treatment for PBD; however, the efficacy of medications used to treat children with PBD has yet to be established which is primarily due to the lack of studies using children and the poor quality of the few conducted studies [12]. Nevertheless, existing research indicates that most children with BD require multiple medications to alleviate symptoms of mania, depression, and co-occurring conditions [3]. It also is important to consider that several medications (e.g., Lithium, Carbamazepine, Valporate) used to treat children and adolescents with BD have not been approved by the Food and Drug Administration, although these medications are often used as mood stabilizers with children [4]. Combination pharmacotherapy appears to be a trend that is increasing. For example, during manic episodes, it is not uncommon for both antipsychotics and mood stabilizing medications to be prescribed. Typically, mood stabilizers (Depakote, Lithium, Tegretol, Topamax) are considered the first line of pharmacological intervention and, if necessary, are followed by anti-psychotic medications (Abilify, Clozaril, Geodon, Risperdal, Seroquel) to help reduce aggressive or psychotic symptoms [3]. After a child's mood has been stabilized with a mood stabilizer, low dose anti-depressant medications may be used to reduce depressive and anxiety symptoms and psychostimulants may reduce ADHD symptoms of inattention, impulsivity, and hyperactivity; however, both anti-depressants and psychostimulants pose a risk of activating manic symptoms and therefore must be monitored carefully. Although there appears to be increasing support for the use of combination pharmacotherapy along with various combinations of newly developed medications, only a limited number of studies have been published demonstrating their capacity to produce the desires results.

There are few evidence-based psychosocial treatment methods for pediatric BD and only a few published preliminary studies [13]. Although there has been a large amount of research published supporting cognitive and behavioral interventions when treating unipolar depression with children and adolescents, few studies have been produced regarding their effectiveness with PBD. Given the lack of empirical data supporting the efficacy of psychosocial treatments for children with PBD, it may be beneficial to consider the research concerning similar treatments on adults with BD. Reviews of the literature indicate that cognitive, cognitive-behavioral, and schema-focused therapies are the most effective psychosocial interventions [13]. Furthermore, there was little research to support the use of these therapies in addressing the manic or hypomanic symptoms of adult BD. Instead, pharmacological treatments appear most beneficial in addressing these symptoms. It is suspected the same may be true when treating children and adolescents with PBD. Nearly all of the studies reviewed for treatment of PBD, implemented therapy as soon as the youngster was stabilized through the use of medication. Pavuluri and colleagues [14] developed a child and family focused cognitive behavioral therapy specifically designed for children with BD. The therapy integrated cognitive-behavioral therapy and interpersonal principles of psychotherapy, modified the conventional behavior therapy and emphasized empathic validation. In addition to addressing the needs of the child, this model also helped parents become aware of their own unhelpful cognitions and to learn new tools in order to serve as "coaches" for their affected offspring. For example, the use of psychoeducation can help parents (and teachers) better understand the biological basis of mood swings often displayed among children with PBD. By recognizing that difficulties with regulation of affect may have a biological basis, parents may recognize the unintentional aspects of PBD and be more likely to respond empathically. The psychoeducation aspect of this model also taught parents how to monitor a child's mood and address rapid cycling. In addition, the parents learned anger-management skills they could implement with their children to help in affect regulation. Preliminary results indicated a good symptomatic response and parent satisfaction.

Children and adolescents with BPD tend to experience a protracted duration of affective instability. Considering the critical developmental processes unfolding during pre- and post-pubertal stages, this chronic/recurrent course is likely to have profound and lasting impact on the individual's life. For example, adolescents with BPD have an increased rate of substance use disorders, placement in

special classes, and need for psychiatric hospitalization [2]. Other correlates include impairment in social, family, and especially school functioning. Bipolar youth also demonstrate high life time rates of comorbidity with anxiety, ADHD, disruptive behavior disorders, suicidality, and substance use. It is clear that PBD, even at the subthreshold level, has serious negative consequences for this population. Developmental influences, atypical presentation, comorbidity, symptomatic overlap with other disorders, is believed to result in the misdiagnosis and underdiagnosis of BD in children and adolescents. Further research studying the effectiveness of psychological, behavioral, and academic management strategies is warranted. Improving understanding and awareness will promote early detection and remediation of PBD and therefore should be a high concern for mental health professionals.

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Birth Cohort

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Synonyms

Cohort; Generation

Definition

A birth cohort refers to a group of children born in a given year, or over a given period of time [1].

Description

A birth cohort can be used to describe a subgroup of children born over a given period of time. Birth cohorts are increasingly used in research design to provide information regarding health and development of different populations within a community [2]. Birth cohorts may also be followed over time to systematically explore different health related events that occur during the life span. For example, obesity is considered to be a major problem for individuals in the developed world. Careful follow-up of children all born at a particular time can reveal patterns of behaviour that might lead to obesity. The follow-up of multiple birth cohorts born at different points in time may reveal how any changes in eating habits influence obesity.

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Birth Complications

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Synonyms

Abnormal presentation; Atypical delivery; Birth trauma

Definition

Any atypical feature of birthing process which increases the risk, impacts the delivery, health, or vitality of the infant, and is seen as a complication.

Description

Many factors may place the fetus at risk of poor outcomes. These may arise as a result of abnormal prenatal development in addition to atypical factors that can occur during the birthing process. The major complications of the birth are:

Cesarean delivery: In a cesarean delivery (c-section) the baby is surgically removed from the uterus by making an incision in the abdomen of the mother. This type of delivery is used most often when the fetus is in distress or danger and medical professionals feel it is unwise to wait for the baby to travel through the birth canal [2–5, 7]. Caesarean deliveries are also used when the baby is in a breech position (feet or buttocks first), transverse position (crosswise), or the head of the baby is too large to travel through the birth canal [2–4, 7]. Although the mother and baby require more time for recovery than is typically needed in a vaginal birth, the number of cesarean deliveries increases internationally each year. Labor exceeding 24 h is an indication of the need for a c-section due to the stress placed upon the infant [2].

Oxygen deprivation (anoxia): Breathing problems can occur during or after the birth process. Anoxia can be caused by Rh factor incompatibility between the mother's and baby's blood types or by entanglement of the umbilical cord during labor [1]. In addition, premature separation (abruption) of the placenta can cause inadequate oxygen supply to the baby and become life threatening without immediate medical intervention. Teratogens such as tobacco and cocaine have also been associated with anoxia. Newborns can also fail to start breathing upon delivery which may result in brain injury and long-term physical and cognitive deficits [1–3].

Low-birthweight and very-low-birthweight infants: Low-birthweight infants weigh less than 5½ lb compared to the average newborn weight of approximately 7½ lb. Approximately 7% of newborns in the United States can be characterized as low-birthweight infants and this category accounts for most cases of newborn death. Low-birthweight infants can be separated into two groups: preterm and small-for-date [2–4, 6]. Very-low-birthweight infants weigh less than 2¼ lb. An infant can also be included in the very-low-birthweight category if they have been in the womb less than 30 weeks before delivery. A large number of low and very-low-birthweight infant births remain unexplained; however, risk factors for delivering a low or very-low birthweight baby include an immature reproductive system of the mother, poverty, women who become pregnant within 6 months of a previous delivery, poor nutrition, a lack of medical care, and other medical conditions that may impact the pregnancy [4]. These are risk factors of respiratory and neurological abnormalities [7].

Preterm and small-for-date infants: Preterm infants are those born several weeks or more before their due date. Although they are small, their weight may still be appropriate for the amount of time spent in the womb. Small-for-date infants are infants below their expected weight considering the length of the pregnancy. Small-for-date infants typically experience more serious problems than preterm infants. Research suggests small-for-fate infants have difficulties with illness, cognitive functioning, and attention through childhood [1–3].

Postmaturity: Babies who have not been delivered 2 weeks after the mother's due date, or 42 weeks after the last menstrual period are considered postmature. Toward the end of gestation, postmature babies receive insufficient blood supply and less oxygen than normal. Due to the labor complications that the large size of postmature babies poses as well as the heightened risk of postmature fetus brain damage or death, labor may be induced or the baby may be delivered by caesarean. Very often mothers with diabetes may have this problem [6].

Stillbirth: A stillbirth occurs when a fetus has died in the uterus, during labor, or delivery. The death of a fetus can be diagnosed during any of these periods although the causes of stillbirths are largely unknown. Electric fetal monitoring, ultrasound, and other observational methods likely have contributed to the decline in third-trimester stillbirths in the past 2 decades [6].

Infant mortality: Infant mortality, or death within the first year of life, is approximately 7 deaths for every 1,000 live births in the United States. The rate of infant survival is influenced by problems that can occur prenatally as well as difficulties that may occur during labor and delivery. Racial differences can be found in rates of infant mortality that are likely due to socioeconomic factors. Infant

mortality rates in the United States have been associated with the high incidence of low-birthweight and preterm deliveries, poverty, and a lack of national health-care insurance [4] or policies that reduces access to services providing prenatal care.

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Birth Cord

►Umbilical Cord

Birth Defects

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Synonyms

Chromosomal abnormalities; Congenital morbidity

Definition

Structural, functional or developmental abnormalities present at birth that have been genetically determined or are the result of environmental interference or trauma during embryonic or fetal life.

Description

Birth defects differ in severity, localization, and are the leading cause of infant mortality in the United States and many other nations. Many parents concerned about genetic abnormalities seek genetic counseling. Genetic counselors can provide information concerning estimated risks of having a child with birth defects, health care options, prenatal diagnostic techniques, and reproductive methods [1, 2]. Birth defects occur in infants of parents from every race, geographical region, and socio-economic status. These birth defects can impair the physical, cognitive, and social-emotional functioning of the individual throughout the lifespan.

The complex processes of prenatal development make the infant susceptible to genetic and environmental influences. These place the neonate at risk of a disruption of normal development and may result in birth defects. A brief list of the primary genetic and environmental influences associated with birth defects are discussed below.

Genetic Influences

Chromosomal Abnormalities: Some chromosomal abnormalities are inherited while others result from accidents during prenatal development. Chromosomal defects may result from mutations which are permanent alterations in genes or chromosomes that may produce harmful characteristics. Mutations can occur spontaneously or can be triggered by environmental hazards. Most chromosomal defects occur from mistakes during meiosis and are a major cause of birth defects. The most common chromosomal disorder is *Down syndrome,* sometimes called *trisomy 21,* which affects 1 out of every 1,000 births. In approximately 95% of cases, this disorder results from a failure of the 21st pair of chromosomes to separate during meiosis. This lack of separation causes the individual to receive three chromosomes instead of the two that are received in normal development. In few cases, an extra 21st chromosome is attached to part of another chromosome [1–4].

Sex chromosome disorders are often identified as late as adolescence and typically result in fewer problems than chromosomal abnormalities that occur in the autosomes. *XYY syndrome* occurs in 1 in 1,000 male births and is caused by an extra Y chromosome. *Triple X syndrome* (XXX) occurs in 1 in 500 to 1,250 female births due to an extra X chromosome. *Klinefelter syndrome* (XXY) occurs in 1 in 900 male births in which the individual carries an extra X chromosome. A missing X chromosome characterizes *Turner syndrome* (XO) that occurs in 1 in 2,500 to 8,000 female births. In *Fragile X syndrome*, an abnormal repetition of a sequence of DNA bases occurs in a particular spot on the X chromosome and damages a particular gene. This syndrome is carried by approximately 1 in 250 females and 1 in 800 males.

Environmental Influences

A teratogen is an environmental agent that causes damage during the prenatal period. In many cases, prenatal exposure to teratogens results in mild to severe birth defects. Teratogens include many prescription and nonprescription drugs, alcohol, infectious diseases such as rubella or *acquired immune deficiency syndrome* (AIDS), and environmental chemicals such as lead or mercury. The amount of harm caused depends upon the quantity of dose, the period of time in which the developing organism is exposed to it, the genetic makeup of the mother as well as the organism, other negative influences such as poor nutrition or lack of medical care, and the age of the organism at time of exposure. Teratogens cause the most damage during the embryonic period but also cause harm during the fetal period. Although teratogens cause immediate physical damage, the effects are often delayed but persistent upon onset. An abundance of research has been collected concerning the outcomes of individuals who were prenatally exposed to teratogens. Examples of disorders attributed to teratogens include *Fetal alcohol syndrome* (FAS) and *Alcohol-related neurodevelopmental disorder* (ARND) [1–3].

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Birth Mark

►Café au Lait Spots

Birth Order

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Synonyms

Child's position; Family constellation; Order of birth; Sibling order

Definition

The birth order is the order in which a child is born. The first child is normally the oldest child that is born into a family. The middle child is can be the second or third child all the way to the last born or the baby of the family. The birth order can change if there is a large difference in ages from one child to the next. A child who is the second born can change if the child has an older sibling that he/she was not raised with. The birth order then changes for the child to be a second first born child of the parent. Some families have several babies in one family that is not directly related to the order of the birth. If children are raised alone then the child could be considered either a first born or the baby. In some large families the birth order is not just the order of birth because of large spans of time between children changes the birth order. A family may have two children, then 10 years latter have another two children. So the children even though they are the forth and fifth child their birth order is thus first born and last born. The term birth order indicates the relationship, behaviors, and personality that emerge. Each child discovers their position in the family and each position has a different meaning [1].

Description

Personalities of a child are influenced by the relationships into which they are born. Each child who is born examines his place in the family. When a new child is born into the family a type the previous child who was the king or queen becomes dethroned. When comparing one child to the next child the behaviors of each child will be different. If you compare two different families first born children there will be more similarities between these two children then their siblings [4].

Relevance to Childhood Development

Understanding the birth order or the family constellation and how it evolves with each child, a parent will can investigate how each child finds his place in the world. A first born child inner environment will be adjusted to

figure out if he will compete or compensate either by giving up or get ahead of his siblings. The second child will focus on the older siblings relationship. This child will try and surpass the first born child or will also give up. Each child's temperament can be affected by the numerical position and how he/she interprets his/her role. Most first and second born children will compete between each other to try and move in one direction or in opposite directions [1]. A parent must be careful not to pit one child against the other. This is a common problem in many families. The middle child no longer is the baby and does not have the privileges of being the baby. This child may always feel that life is unfair. The middle child needs to the reassurance that he/she is cared for and cherished. The baby of the family will normally always have the position of being the privileged child. A parent needs to be aware of the baby of the family and how the position, of being the baby is maintained by the family. They may expect others to take care of their needs and may not feel the need to receive more than to give. Every child develops their own skills and figures out what methods work for him/her and they will figure out their personal identity. In each family everyone has their own personality. Parents need to make interpretations about the child's place in the family constellation and be sensitive to what the child may feel about him/herself [3].

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Birth Process

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Synonyms

Childbirth; Labor and delivery

Definition

The birth process is the time period from the start of productive contractions to birth. The process is typically divided into three stages.

Description

Parturition, the process of uterine, cervical, and other changes that brings on labor, typically begins about 2 weeks before delivery as a result of hormonal changes.

Stage 1: Dilation and Effacement of the Cervix

In the first stage of the birthing process, uterine contractions occur approximately three to four times an hour and typically last for a period of 1 m. As the first stage progresses, contractions become more frequent and intense and water eruption occurs. As a result of these contractions, the woman's cervix (the opening into the birth canal) stretches, opens, and thins [1, 2, 4]. By the end of the first stage, the cervix (or uterine opening) has been dilated to about four inches [2, 4]. This widening allows the baby to move from the uterus to the birth canal (vagina). The first stage of the birthing process is the longest of the three stages and can last between 12 and 24 h for a woman having her first child. In later births, the first stage is shorter and typically lasts between 4 and 6 h [2].

Stage 2: Delivery of the Baby

The second stage of labor begins when the baby's head starts to move through cervix and birth canal and terminates when baby completely emerges from the mother's body [2, 4]. In this stage, strong contractions of the uterus continue and the mother feels the natural urge to squeeze and push with her abdominal muscles. Once the cervix is open, the baby is ready to be born. The baby comes through the birth canal and is born covered in amniotic flood and occasionally blood. The baby is delivered with the umbilical cord still attached so after delivery the umbilical cord is cut and clamped and a quick assessment of newborn health is conducted [1, 2]. The second stage of labor is shorter than the first and can last for up to an hour and a half for a first-time birth. In later births, the second stage is approximately 20–30 min. If the delivery of the baby lasts longer than 2 h, doctors may intervene with forceps or use vacuum extraction to remove the baby [3].

Stage 3: Birth of the Placenta (Afterbirth)

The birth of the placenta is the third and shortest stage of labor. This stage occurs after the baby has been born. The mother experiences a few more contractions and will usually push a few more times to times to expel the placenta and other membranes [4]. Delivery of placenta typically takes between 5 and 30 min and concludes the labor process. Some researchers have added a fourth stage to the birth process. This stage occurs a couple of hours

after the delivery and the mother rests in bed while her recovery is monitored [2].

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Birth Trauma

►Birth Complications

Birth Weight

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Definition

The weight of a child at birth, which is considered along with gestational age of child at birth.

Description

Birth weight has been conclusively shown to be linked to the gestational age of a child. With every gestational week of progress there is a concomitant increase in birth weight that is expected in a developing fetus. A child who has a birth weight that falls within a range for gestational age is considered to have birth weight that is appropriate for gestational age (AGA). Deviation from the normal birth weight has been attributed to genetics, health factors of the fetus, health of the mother, multiple births, and environmental factors [2, 4].

Relevance to Childhood Development

There have been numerous studies which have linked weight for gestational age to later life developments as well as morbidity and mortality. These studies have seen various degrees of success in linking later life occurrences such as propensity for cerebral palsy and other developmental disorders [1], blood pressure [3], and obesity [2]. Definitive links that can be found between birth weight and later life occurrences can help in the creation of early interventions and special programs designed to compensate for the experiences of low birth weight children.

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Bisexual

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Synonyms

Ambisexuality; Homosexuality; People who "swing both ways"; Switch-hitter

Definition

The state or condition of being sexually attracted to members of both sexes.

Description

Bisexuality refers to the sexual attraction to members of both the same and opposite sex. The term "bisexuality" is couched in the sexual continuum of heterosexuality, as defined by attraction to members of the opposite sex, and homosexual, defined as being attracted to members of the same sex. Although predominant culture intuits that there are bipolarities of sexuality, with bisexuality as an intermediary, significant bodies of literature have challenged this viewpoint in reference to bisexuality. Researchers Alfred Kinsey and Fritz Klein are two prominent scholars who spent a great deal of time examining bisexuality. Therefore, to further understand the concept of

bisexuality, the work of these two authors will be examined in detail in addition to other authors, cultural, and societal viewpoints.

Societal views of bisexuality may have changed over time, but there is still no set of rules or behaviors used comprehensively to define bisexuality as a cultural, personal, and societal phenomenon. The term bisexuality has been in flux for centuries and, therefore, difficult to define [16]. Additionally, there is a discrepancy in regard to who creates and uses the term bisexual. Kinsey (1990) reported that a number of males and females who had sexual relations with members of the opposite sex have identified themselves as lesbian, gay, and/or bisexual. The opposite also exists, wherein individuals who have had involvement with both sexes have identified as heterosexual. The cultural influences on sexuality have also implicated that individuals who identify as bisexual are "closeted homosexuals" [11]. The assumption has been made that socialization has caused individuals "lean toward" attraction to one sex or the other [2]. The determination of whether an individual or society is able to label one as bisexual has the potential for a large shift in the number of people for whom the category of bisexuality is fitting.

Predominant culture in early to mid-twentieth century assumed that most people were heterosexual, with relatively few homosexuals, and a drastic underestimate of the proportion of the population that could be defined as bisexual. There was an inherent assumption that someone was either heterosexual or homosexual [9]. A digression from the traditional definition of bisexual created a revolutionary glimpse into the bedrooms of Americans. Kinsey reported in the late 30s and 40s that there were a large number of individuals who did not fall within the traditional realm of sexuality. Kinsey's research brought about a revelation that homosexuality was much more widespread than previously thought. By broadening the definition of bisexuality to include a number of factors not previously predominant in the fields of sexuality, Kinsey described a population whose sexuality was measured by sexual attraction, fantasies, behaviors, emotions, and self identification. These were all factored into Kinsey's determination of one's sexual designation. These practices defied what was, and in many ways still is, perceived as the norm [12].

Kinsey designed a heterosexual-homosexual seven point rating scale, wherein zero was assigned to individuals who where exclusively heterosexual with no homosexual psychological reactions nor overt experiences, and six was assigned to individuals with exclusively homosexual psychological reactions and overt experiences (Kinsey, 1940; [9]). There are no discrete, intrinsic categories of sexuality, but, rather, individuals fall on a continuum of sexual reactions and experiences. Within this framework, bisexuality is the predominant sexuality, while the outliers are those who are strictly hetero or homo sexual.

Kinsey also proposed that there is a continuum of sexuality. This continuum purports that there is not, as previously thought, explicit boxes of sexuality, but rather that there is a linear outlook in which there can be shades of sexuality ranging from strictly heterosexual to solely homosexual. Additionally, an individual's sexuality can shift on the continuum over time, allowing distinct periods of sexuality through a lifetime. Under this theory, one may be defined as a heterosexual at one point, but when circumstances arise in which one finds the same sex appealing, a transition takes place wherein the label of bisexual is applied. The same holds true for the transition from homosexual; the point in time at which a homosexual individual finds attractive qualities in the opposite sex, the classification then shifts to bisexual (Kinsey, 1940; [9]). These methods of defining sexuality have broadened the scope of interpretation, allowing the prevalence of bisexuality to garner more attention publicly than previously imagined.

In addition to the continuum, many different types of bisexuality have been discussed. There are individuals who are experimenting to discover sexual preferences; people in transition from either homosexuality to heterosexuality or from heterosexuality to homosexuality; people who participate in sexual acts with the same sex for pay; people who are responsive to sexual stimulation from any person; and people who have a definite preference for persons of the same gender [11]. Definitions of bisexuality do not necessarily distinguish between actual sexual activity versus the attraction and love of both sexes. Situational sexual activity has also been described in largely homogenous groups, wherein same sex acts occur between individuals labeling themselves as heterosexual. For instance, in groups that are sexually separated, either by designation or through cultural ideals, individuals identifying as heterosexual may engage in homosexual sex acts while maintaining a heterosexual identity. One such example is prison, where males and females are segregated.

Consideration must also be given to the attribution of "behaviorally bisexual" versus sexual orientation. It cannot be predicted with certainty the actual sexual behavior of a person whom has labeled themselves hetero, homo, or bi, as research has indicated that the sexual history of both men and women does not accurately reflect the chosen term [14]. For example, one who chooses to label themselves as a lesbian may have slept with men in the past and

shunned the label of bisexual. Some view bisexuality, not through the mere attraction of qualities, but by the relationship that has a potential to manifest. When there is an opportunity, in the mind of the individual, for a relationship to be established with someone of the same sex, then there is also a greater level of consideration given to the term bisexuality. Contradictory to Kinsey's research, Klein's theory considers that there is the ability for people to find qualities attractive in members of the same sex, without delving into the terminology bisexuality [10].

Kline, who published an instrumental book in the 1990s, drew heavily from the work of Kinsey. Klein expanded the use of the term bisexuality by incorporating various aspects, dimensions, and facets. Klein spoke about sexual orientation, where one is oriented toward heterosexuality, homosexuality, or bisexuality. This contemporary viewpoint discusses bisexuality as a lifestyle, rather than simply a label affixed to one's sexual activities. Additionally, a cultural and biological analysis is presented. Klein's work included, but was not limited to, a grid based on the work on Kinsey that looks at seven factors over three time periods to deduce sexual orientation, and the "threat" of bisexuality [10].

Klein's Sexual Orientation Grid utilized the following seven factors: sexual attraction, sexual behavior, sexual fantasies, emotional preference, social preference, lifestyle preference, and self-identification. A scale ranging from 1 to 7 was used to categorize an individual's responses, where 1 equaled other sex only to 7 equaling same sex only. Time periods examined were past, present (last 12 months of life), and ideal. Values 2 through 6 included aspects of bisexuality. Unlike Kinsey, Klein's grid examined more factors and did not affix the label of bisexual to a person from a definitive point in time. Instead, Klein reported that sexuality is an ongoing, dynamic process, where, at distinct points in time, a person may shift from bisexuality back to either homosexuality or heterosexuality, from homosexuality to heterosexuality, and so on.

The "threat" of bisexuality is also discussed. Bisexuals face not only outside discrimination by heterosexuals, but also in-group discrimination and stigmatization from lesbians and gay men. Bisexuals have faced anger in a number of different ways. Heterosexuals may discriminate against bisexuals by subjecting bisexuals to the same stigmatization as lesbians and gays. In addition, the in-group discrimination against bisexuals may include thoughts, statements, or actions meant to convey the following: Bisexuals cannot make up their minds, bisexuals are greedy and want to be able to "choose" from both sexes, and bisexuals are attempting to assimilate into heterosexual culture by choosing to date members of the opposite sex. People indentifying as bisexual are "betraying" gay culture by participating in heterogeneous rights. This echoes earlier statements about closeted homosexuals. Facing discrimination from the dominant and stigmatized cultures leaves those with a bisexual orientation at a great social disadvantage.

Relevance to Childhood Development

The sexuality of a child is an ongoing state of change, not concluding at any finite point. Much of the literature refers to any non-heterosexual youth as "minority youth" [5–7]. While there is a deficit of information on bisexuality specifically, a number of factors related to healthy sexual development have been discussed in relation to sexual minority youth, as encompassed by lesbian, gay, bisexual, transgendered, questioning, and queer youth. Gay, lesbian, bisexual, transgender and questioning (GLBTQ) youth face tremendous difficulties in a society where heterosexuality often seems the only acceptable orientation, homosexuality is regarded as deviant, and variation from cultural concepts of "normal gender" often evokes hostility or violence. Research shows that homophobia and heterosexism greatly contribute to GLBTQ youth's high rates of attempted and completed suicide, violence victimization, substance abuse, teenage pregnancy, and HIV-associated risk behaviors. Additionally, bisexuality can place youth at greater risk for harassment, homelessness, substance abuse and risky survival strategies than their heterosexual counterparts ([4, 8, 13]; Whitebeck et al., 2004).

The victimization of sexual minority youth is a present and concerning occurrence. Sexual minority youth as a whole can be said to have an environmental predisposition to a number of risk factors due the potential lack of support from family and peers [8]. A strong support system is needed in order to protect bisexual youth from the risk-factors that are present. This support is instrumental in providing a safe environment for identity development. In an atmosphere where victimization and harassment of bisexual youth are normative, supportive and non-judgmental role models are crucial. Due to the cultural demands to conform to hetero-normative, childhood development can be greatly aided by supportive adults and community members [13].

Furthermore, a greater risk has been found for gay, lesbian, and bisexual homeless and runaways than for heterosexual youth. Lesbian, Gay, Bisexual, and Transgender (LGBT) youth run away from home more frequently, and are more likely to engage in sexual survival strategies on the streets [15]. Victimization on the streets, both

physical and sexual, was more likely as well. For sexual minority youth, both leaving home and the dangers on the street appear to be amplified [4, 15].

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Bisexual Identity

►Sexual Identity

Black Dialect

►African American English
►Ebonics

Black English

►African American English
►Ebonics

Black English Vernacular

►African American English
►Ebonics

Black Intelligence Test of Cultural Homogeneity

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Definition

The Black Intelligence Test of Cultural Homogeneity (BITCH) is a 100-question culturally specific test developed by Williams [2].

Description

Assessment tests in psychology have historically been culturally biased against members of ethnic minority groups. Psychological assessments were commonly normed on White middle-class people and consisted of questions relevant to the White middle-class lifestyle and language usage. Williams wanted to develop a test that was both culture specific and dialect specific.

The process of test development began with Williams identifying over 100 terms that were both specific to Black culture and common. He then piloted the words for clarity, objectivity, and ability to discriminate between Black and White experimental groups. The test is composed of 100 multiple choice questions that assess culturally correct definitions for the exam items. These questions consisted of words common in Black dialect, slang, and vernacular in the 1970s.

The BITCH has been tested for reliability and validity. The BITCH has good test-retest reliability, indicating that most individuals will score similarly on each subsequent administration of the test. Some researchers have attempted to test the validity of the BITCH by comparing the scores of the BITCH to scores on other intelligence tests, such as the Wechsler Adult Intelligence Scale, Wechsler Intelligence Scale for Children, and Stanford-Binet. The results generally suggest that the BITCH is not highly correlated with the other more familiar tests of intelligence. Some may argue that because the BITCH is not highly correlated with the other measures of intelligence, it cannot be a valid measure of intelligence. However, this argument is not necessarily valid given that at that in the 1970s, the other measures of intelligence were normed mostly White populations. Therefore, it would not be scientifically sound to validate one measure that was developed for and normed on a Black population by comparing it to measures that were developed for and normed on a White population.

Although some research has been conducted to develop, explore, and test the reliability and validity of the BITCH, published research is not readily available. Several studies conducted on the BITCH have been those of doctoral students as dissertation projects. Only a few articles on the BITCH have been published in scholarly journals [1]. The BITCH is currently used as a discussion tool in classrooms (at Oklahoma State University and elsewhere) to introduce the concepts of cultural bias in testing, test problems, and test validity.

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Black Language

►African American English
►Ebonics

Blackheads

►Acne

Blank Slate

►Tabula Rasa

Blastocyst

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Synonyms

Blastodermic vesicle

Definition

The blastocyst is a thin-walled hollow structure formed in early embryonic development [2–4].

Description

The blastocyst is a hollow, thin-walled sphere of about 100–150 cells, which is divided into an outer layer and an inner layer [1–6].

Relevance to Childhood Development

The blastocyst is formed during the germinal period of prenatal development [1, 4–6]. After conception, the newly fertilized egg (the *zygote*) moves through the fallopian tube, undergoing a series of mitotic cell divisions called cleavages. This process continues until the formation of a solid sphere of sixteen undifferentiated cells called a *morula* [1, 4–6]. Once the cells start to differentiate, they segregate into an outer layer (*trophoblast*) and an inner layer (inner cell mass), forming the blastocyst [1–6]. The outer layer of the blastocyst eventually becomes the *placenta* and other supporting tissue needed for fetal development within the *uterus* [1–6]. The inner layer of the blastocyst becomes the tissues of the body. The implantation of the blastocyst into the lining of the uterus marks the end of the germinal period of prenatal development and the beginning of the embryonic period [1, 4–6]. The implanted blastocyst is called the *embryo* [1, 2, 4–6].

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Blastodermic Vesicle

►Blastocyst

Blended Families

►Stepfamilies

Blended Gender

►Androgyny

Blind

►Blindness

Blindness

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Synonyms

Blind; Visually impaired

Definition

Blindness is a condition that describes the lack of visual perception, which cannot be corrected with glasses or contact lenses.

Description

There are two levels and multiple variations of blindness. Two levels of blindness include total blindness and *legal blindness.* Total blindness refers to the complete lack of form and visual light perception. Legal blindness refers to the visual acuity of 20/200 or less in the better eye with glasses or contact lenses.

Multiple variations within blindness also exist. Some of these variations include monocular blindness, color blindness, and night blindness. The following are descriptions of these three variations in blindness:

- Monocular blindness refers to blindness in one eye.
- Color blindness, also referred to as color blindness, is a condition that describes the difficulty or the inability to identity differences between colors.
- Night blindness, also known as nyctalopia, is a condition that describes the difficulty or the inability to see in low light.

In addition, and not to be confused with night blindness, individuals described as having only light perception have no more sight than the ability to tell light from dark and the general direction of a light source.

Causes

Multiple causes of blindness have been identified such as lazy eye, optic neuritis, stroke, tay-sachs disease, retinitis pigmentosa, retinoblastoma, and optic glioma. Additional common causes of blindness are as follows:

- Disease (e.g., diabetes, cataracts, glaucoma, and retinitis pigmentosa, age-related macular degeneration)
- Malnutrition
- Abnormalities (e.g., blocked blood vessels)
- Injuries (e.g., injuries to the occipital lobe of the brain and complications of eye surgery)
- Genetic defects (e.g., albinism Leber's congenital amaurosis)
- Poisoning (e.g., lead poisoning)

Management

Many routines, *adaptive technologies*, and other forms of assistance have been created to assist individuals with vision impairments while completing their daily activities using their remaining senses. The following are examples of such routines:

- Labeling or tagging personal items allows individuals to identify items through their sense of touch.
- Placing different types of food at different positions on a dinner plate allows individuals to locate specific foods on his or her plate.

- Folding money that is in the form of paper bills allows individuals to identify specific bills.

In addition to routines, many adaptive technologies have been created to allow individuals with vision impairments to complete tasks by using their remaining senses. The following are examples of these adaptive technologies:

- Screen readers or screen magnifiers are categorized as adaptive computer and mobile phone software that allow individuals to interact with their computers and phones.
- Mobility may be assisted by a cane or guide dog.
- Tactile paving and audible traffic signals make it safer for visually impaired pedestrians to cross the streets.
- Adaptation of coins and banknotes allows individuals to determine value by touch.
- Large-print, magnifying glasses, Braille, talking books, reading machines, and scanners assist individuals with the tasks associated with the act of reading.

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Blood-Clotting Disorder

►Hemophilia

Blue Devils

►Depressants

Bobo Doll Experiment

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Description

The Bobo doll experiment was conducted by Albert Bandura in 1961 [1] and studied patterns of behavior associated with aggression. Additional studies of this type were conducted by Bandura in 1963 [2] and 1965. A Bobo doll is an inflatable toy that is approximately the same size as a prepubescent child.

The aim of Bandura's experiment was to demonstrate that if children were witnesses to an aggressive display by an adult they would imitate this aggressive behavior when given the opportunity.

Bandura et al. tested 36 boys and 36 girls from a Stanford nursery school – aged between 37 and 69 months (mean = 4 years and 4 months). Their role models were one male adult and one female adult.

The children were matched on the basis of their pre-existing aggressiveness. They did this by observing the children in the nursery school and judged their aggressive behavior on four 5-point rating scales. It was then possible to match the children in each group so that they had similar levels of aggression in their everyday behavior. The experiment is therefore an example of a matched pairs design.

There were three main conditions – the aggressive condition, non-aggressive condition and the control group.

Relevance to Childhood Development

This experiment is important to psychology because it was a precedent that sparked many more studies about the effects of viewing violence on children.

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Bodily-Kinesthetic Intelligence

►Gardner's Theory of Multiple Intelligences

Body Dysmorphic Disorder (BDD)

►Dysmorphia

Body Esteem

►Body Image

Body Image

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Synonyms

Appearance satisfaction; Body esteem; Body satisfaction

Definition

A multidimensional concept generally defined as the subjective mental representation of one's own body and one's own appearance.

Description

Body image is a complex phenomena which has been described using various terms and which often focuses on different aspects of body image, e.g., affective, cognitive, perceptual, sociocultural, and physiological aspects [15]. The primary focus of body image research has been on body dissatisfaction and its role in eating disorder development.

Etiology. Body image, particularly body dissatisfaction, is believed to have multiple contributing factors. Sociocultural theory has emphasized the portrayal of the thin ideal as a key factor in the development of body dissatisfaction. Western society has created a so-called beauty ideal that contributes to high levels of body dissatisfaction among boys and girls [6]. Successful and happy women are portrayed as being thin, tall and attractive while successful and happy men are portrayed as being muscular and tall.

Parents and peers have also been shown to have an impact on a child's body image [1]. The dynamic of the mother–daughter relationship has been identified as playing a large role in the development of body image in young girls [2]. Mothers convey societal messages and often model negative body image and eating dysfunction which ultimately results in the daughter demonstrating increased body dissatisfaction. Messages from peers are also conveyed early in development. Body size stigmatization has been found in preschoolers as young as 3 and 4 years old [3, 16]. When young girls compare themselves to other girls they believe are more attractive, it can lead to feelings of inadequacy and body dissatisfaction [5].

Cognitive approaches have emphasized how these sociocultural messages are integrated into body schemas which influence later information processing [17]. Thus, children who have developed a negative body schema are more likely to view media images portraying a thin ideal as being directed toward them. This internalization then increases the strength of the negative body schema, creating a vicious cycle.

Assessment. The assessment of body image has generally focused on perceptual disturbances of body size or attitudinal components of body dissatisfaction [7]. The most common methodology to assess perceptual disturbances of body size include body site estimation and whole body size estimation techniques. Attitudinal and affective components of body dissatisfaction are often assessed using the Eating Disorder Inventory 3 [8] in preteen or older populations. In younger children, figural stimuli are often used to determine the discrepancy between perceived body size and idealized body size.

Treatment/Prevention. No single course of treatment has been widely accepted for body image disturbance. Several factors have been identified as being important for the treatment process. These factors include training in media literacy and involvement of family members. Research regarding the prevention of body image disturbance (and eating disorders) has raised critical concerns about the efficacy of prevention programs and possible harm caused by the programs [13]. Professionals developing prevention programs, particularly those in a school setting, should avoid glamorizing the thin ideal, introducing participants to unhealthy eating behaviors, and normalizing eating dysfunction. In addition, professionals must not model their own negative body image or fear of fat to participants.

Relevance to Childhood Development

Body image disturbance and eating disorders exist in young children [14]. Children as young as 6 years old, have shown body dissatisfaction and concerns about their weight [4]. Research has consistently shown that body dissatisfaction at younger ages has been associated with later development of eating dysfunction, anxiety, depression and low self esteem [9–12]. Therefore, the development of a healthy body image is critical to the overall emotional, social and physical health of developing children and adolescents.

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Body Language

▶Gestures

Body Mass

▶Weight

Body Mass Index (BMI)

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Definition

Body Mass Index (BMI) is a ratio of a person's weight to their height, which can be used as an indicator of potential weight problems. BMI is routinely used to assess an individual's risk for health problems due to overweight.

Description

BMI is computed by dividing an individual's weight (kg) by the square of their height (m^2). Although BMI is a reliable measure for overweight in most people, it cannot be used as a diagnostic tool; rather, it is used to screen identify individuals who may be at risk for health problems related due to overweight. For adults 20 years and over, four BMI groups are commonly identified: Underweight (BMI $<$ 18.5), Normal (BMI = 18.5 – 24.9), Overweight (BMI = 25 – 29.9), and Obese (BMI $>$ 30). The BMI ranges for these four groups differ for infants, preschoolers, children and adolescents. Healthcare providers use growth charts from the Center for Disease Control (CDC) to interpret BMIs for Infants, preschoolers, children, and adolescents. For children, the four groups are defined in terms of the percentile ranking among peers of the same sex and age. Children with BMIs at the fifth percentile or less are considered underweight. Children with BMIs between the 5th and 85th percentile are considered normal weight. Children with BMIs between the 85th and the 95th percentile are considered at-risk of overweight. Children with BMIs at or above the 95th percentile are considered overweight. Only a qualified healthcare provider can determine the specific health risk associated with an individual's BMI [1, 2].

Relevance to Childhood Development

BMI is routinely used by healthcare providers and researchers to measure overweight in children. Recent research has indicated a dramatic rise in obesity in the United States. The trend is expected to continue. In children, overweight can result in numerous physical and psychological problems. Children who are in the overweight population are more at risk for medical problems such as Type 2 diabetes, intracranial pressure, circulatory problems, as well as psychological problems such as behavioral problems, depression, and social rejection by peers. Long-term medical and psychological conditions related to childhood overweight are also a concern. Children who are overweight also have a significantly greater risk of being overweight as adults, a population that also has increased medical and psychological problems, compared to normal weight children [3].

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Body Satisfaction

►Body Image

Body Weight

►Weight

Bonding

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Synonyms

Attachment; Imprinting; Male bonding; Parent-child relationships

Definition

From the 12C English *band* as in to tie together, bonding refers to the formation of a social relationship.

Description

Bonding is the formation of a close relationship between individuals that helps them survive, learn, love, and procreate. The concept arose within a few streams of comparative research [7]. For example, Konrad Lorenz conducted work with ducks and geese, and showed that goslings would imprint and learn to follow the initial object they encountered after birth. Niko Tinbergen also studied bird species and the stimulus parameters of the formation of this initial social relationship. Harry Harlow examined new born rhesus monkeys and found that they preferred a surrogate mother who provided physical security and comfort over one who provided only nutrition [6]. This work contributed to Bowlby's development of Attachment Theory [2], which was also based on his own observations of orphans from World War II in the UK. These orphans had physical but not emotional needs met within care, and consequently had difficulties in social relationships later in life. When applied to humans, the phrase bonding has largely been replaced by attachment formation in child development research, although it continues to be used by the lay public and within Family Court proceedings, e.g., is the child bonded to the parent? Bonding implies a relationship, but does not mean the relationship is necessarily positive, as in traumatic bonding [4] or deviant peer bonding when high-risk youth are brought together and reinforce negative behaviors of one another [3].

Based on its roots with imprinting, the concept of bonding as applied to mother-infant attachment formation has led to research that has investigated the potential negative impact of early separation experience on the mother-child bond that forms [5]. For example, it was hypothesized that early separation due to preterm birth and associated medical intervention/hospitalization, separation due to maternal employment, and even bottle as opposed to breast-feeding a newborn would be disruptive to the mother-child bonding experience, in other words, insecure attachment formation. But data do not support these hypotheses. Instead, the mother child (and father-child) bond is robust with respect to short and predictable separations and what is more important is the quality of interaction when parents are with the infant. Attachment research has therefore focused on maternal sensitivity and predictable care for infant needs as bases of secure attachment formation and an indication of bonding [1].

The concept of bonding has also been applied to the formation of other social groups, such as the bonding that goes on between roommates new to university, children assigned to a specific cabin at summer camp, and high school sport teams. Here there is a common goal that motivates the bond which forms, whether it is friendship, competition with other groups that are formed, or winning games. Other terms have been applied to these processes, such as peer group formation or ingroup/outgroup competition. The television show *Survivor* demonstrates these points well as contestants on this show are assigned to "tribes" in a semi-random fashion, but competition with other tribes in contests enhances within-group bond formation that often lasts even after the tribes are not living separately. Humans are inherently social creatures who tend to form social bonds whenever they are assigned to groups, and these bonds can enhance intergroup competition.

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Bonnevie-Ullrich-Turner Syndrome

►XO Syndrome

Book Learning

►Literacy

Book Matching

►Bibliotherapy

Books

►Media

Borderline Personality Disorder

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Definition

Borderline personality disorder (BPD) is a complex and clinically problematic psychiatric condition that interferes with the ability to regulate emotions and behaviors. Like all personality disorders, BPD is associated with serious deficits in interpersonal functioning. According to the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* (DSM-IV), individuals who meet criteria for BPD are characterized by five or more of the following criteria: an unstable sense of self, dissociative or paranoid thoughts, extreme mood swings, fears of abandonment, impulsive behaviors, a tendency to inflict self-harm, difficulty controlling anger, feelings of emptiness, and turbulent relationships with others. While youth may display symptoms of BPD, and while features may be present as early as middle-childhood, BPD tends to be clinically diagnosed first in late adolescence or early adulthood.

Description

Individuals with BPD struggle with symptoms that adversely affect their mood, self-image, thought patterns, behavior in daily life, and relationships with others. Due to the seemingly intolerable emotional distress and difficulty functioning that accompany BPD, frequent use of mental health services and a high risk of suicide are common [12]. While BPD is typically not diagnosed until the age of 18, borderline symptoms as described in the DSM-IV-TR often present earlier in adolescence and growing evidence suggests that children also exhibit developmentally relevant features of this severe mental illness (see [7]).

Five of nine criteria outlined in the DSM-IV are required to receive a diagnosis of BPD. Lieb et al. [12]

organize the criteria into four categories. *Affective criteria* include (a) a high degree of reactivity to the external environment and difficulty regulating emotions, reflected by extreme mood swings within brief periods of time, (b) a tendency towards angry outbursts, and (c) feelings of emptiness. *Cognitive criteria* include (a) dissociative or paranoid thoughts and (b) an unstable sense of self. *Behavioral criteria* include both (a) a tendency towards self-harm, including self-mutilation and suicide attempts; and (b) impulsive aggression and more general impulsive behaviors, including "substance abuse, disordered eating, spending sprees, verbal outbursts, [and] reckless driving" (p. 453). Finally, *interpersonal criteria* include (a) fears of abandonment, and (b) turbulent relationships with others. Both of these interpersonal criteria are likely rooted in rejection sensitivity and make it extremely challenging to establish long-lasting and meaningful relationships [15].

For a person to qualify for a diagnosis of BPD, the associated pattern of experience and behavior must have begun relatively early in life (by late adolescence or young adulthood), be consistent over time and across situations, deviate in a clearly noticeable way from expectations within the individual's culture, and cause distress or impairment in functioning [9]. BPD tends to be highly comorbid with Axis I disorders such as depression, anxiety, PTSD, substance abuse, and eating disorders [2]. In adolescence, BPD tends to also be comorbid with disruptive behavior disorders [5].

Prevalence

According to epidemiological studies, rates of BPD among adolescents in the community range from 0.9% to 3%, while rates of BPD among adolescents who receive outpatient treatment have been estimated at 11% and inpatient treatment at 49% (see review by [4]). In inpatient clinical settings, girls are much more likely to receive a BPD diagnosis than boys [10]. Research with representative community samples, however, has found rates of severe BPD among young males and females to be equivalent [1]. That BPD features are incongruent with cultural expectations for females may at least partially account for this discrepancy [15].

Borderline Pathology in Younger Populations

The expression of BPD features in late childhood and adolescence tends to reflect level of development and situational factors unique to these periods. Youth with affective features of BPD may react in an unusually emotional manner, especially when they perceive they are being snubbed or left out. Compared to same-age peers, youth with cognitive features of BPD may have more trouble establishing an identity, have less insight into their own thoughts and behaviors, and be highly sensitive to negative social cues. Youth with behavioral features of BPD will likely be more impulsive than is age-appropriate and may show sudden acts of aggression towards others when they are angry. Children and adolescents with interpersonal features of BPD may have overly close, exclusive, or dependent friendships that they find difficult to maintain (for a broader discussion of the expression of BPD features in youth, see [7]).

Youth who possess a maladaptive, immature, and inflexible response repertoire to people and situations – especially when their temperament is characterized by depression, anxiety, affective instability, and/or impulsivity – face significant challenges in navigating successive developmental stages [14]. High symptom levels and a clinical diagnosis of BPD in early through late adolescence have been associated with current difficulties in functioning across many domains: in school, e.g., lower levels of academic achievement and truancy; at home, e.g., more likely to have family problems for which child protective services are involved, more likely to live in a residential placement; and in social interactions with friends, romantic partners, and family members [1, 5, 16].

Risk Factors

Multiple pathways bridging biology, environment, and culture are likely responsible for the development of BPD across individuals [9]. Family aggregation of BPD is not uncommon, suggesting a role for heritable temperament [7]. Parental psychopathology in general also predicts BPD among offspring [2]. While borderline pathology of childhood is associated with deficits in executive function, such deficits may coincide with or be the result of environmental stressors [18]. Chaotic or dysfunctional family environments, poor attachments to caregivers, as well as adverse childhood events – including sexual abuse, physical abuse, neglect, and traumatic separation from caregivers – are very common among individuals who go on to develop BPD [2]. Traumatic experiences, however, are neither necessary nor sufficient for the development of BPD. Rather, temperament or genetic characteristics may make certain children more susceptible to the effects of environmental risks [14]. Cognitive strengths, social support (e.g., secure attachment to parents), and a less anxious temperament may offset the effect of individual risk factors, especially when such factors occur in isolation [6, 7].

The role of culture is also worth considering in an analysis of risk factors for BPD. Modern societies

emphasize independence and autonomy and in turn, expect adolescents to create their social networks and identities [14]. Such expectations may work against adolescents who are already impulsive and thrill-seeking: for instance, leading them to select peers and environments that increase their psychosocial risks for developing BPD (see [7]). On the other hand, traditional societies tend to provide a more predictable structure and more clear social role expectations, leaving fewer opportunities for impulsive behaviors characteristic of BPD and the problematic consequences of such behaviors [14].

Prognosis

BPD in youth has been associated with future difficulties in functioning at school, in one's relationships, and in employment settings. At school, youth BPD has been associated with subsequent failure, including grade retention and dropout [1]. In terms of relationships, high levels of BPD symptoms in adolescence have been linked to subsequent conflict, estrangement, and poor quality interactions with friends, family members, and intimate partners (e.g., [8]). In the long-term, high adolescent borderline symptom levels predict the attainment of fewer developmental milestones in middle adulthood (e.g., starting a family, establishing a career), more difficulty functioning in one's primary role (as student, homemaker, or in employment settings) and significantly lower adult levels of life satisfaction. The more severe symptoms are in late adolescence, the worse the prognosis (see [16]). Suicidal behavior is common among those meeting criteria for BPD – up to 10% will complete suicide (see [12]). When comorbid depression and substance abuse are present, this outcome is even more prevalent [17].

Course

Precursors to BPD, which may appear as temperamental characteristics rather than symptoms, are often present in childhood; problems become harder to ignore, however, with the higher levels of impulsivity that accompany and follow puberty (see [7]). BPD symptoms, particularly impulsivity and aggression, tend to decline with age through early and middle adulthood (e.g., [11]). However, difficulties in intimate relationships, role dysfunction, and other forms of impairment appear to continue even when formal criteria for BPD are no longer met (e.g., [16]).

Assessment

Assessment of borderline pathology in youth may point the way towards stabilization of symptoms and timely treatment while helping avert the serious risks associated with BPD [9]. A lack of developmentally appropriate criteria for personality disorders in the DSM-IV and the World Health Organization's (WHO) International Classification of Diseases (ICD-10), the fact that there are few reliable and valid instruments presently available for clinical use with children and adolescents, and a reluctance to recognize BPD symptoms in youth, however, make such assessment challenging.

Crick and colleagues' self-report Borderline Features Scale for Children (BPFS-C) is one measure that may be administered to children as young as 9 years old. From this age on, most children are able to provide information on their characteristics or problems. Another self-report instrument that includes a measure of BPD symptoms is Reynolds' Adolescent Psychopathology Scale, designed specifically for youth between the ages of 12 and 19. Poreh and colleagues' Borderline Personality Questionnaire (BPQ) is recommended for screening purposes among adolescents who seek help in clinical outpatient settings [4]. First and colleagues' Structured Clinical Interview for Axis II disorders (SCID-II), shows some promise for assessing adolescents for personality disorders including BPD, as does the Shedler-Westen Assessment Procedure for adolescents (SWAP IIA), which allows clinicians to communicate their observations and inferences in a quantified manner. Teacher-report, parent-report, and behavioral observations are also useful and important sources of information; at this time, however, standardized instruments specifically designed to assess BPD via such methods are not available. Common comorbid conditions should be evaluated simultaneously so they too may be treated when present.

Characteristic behaviors must show significant consistency and persistence across time and settings for BPD to be considered. However, clinicians should also take into account that underlying pathology may be expressed differently as children grow older. Prior to concluding that youth traits, symptoms and behaviors are indicative of borderline pathology, clinicians should rule out normal developmental explanations and developmental delays. Clinicians should also gather information about the youth's larger social system (peers, family, school setting, social circumstances, cultural context) to determine the extent to which individual or societal expectations may play a role in the expression of borderline features, and whether such features are in fact discordant with environmental conditions. Information about past stressful life events (e.g., history of abuse), family member's needs, and the function or value of specific behaviors to the individual may also be useful for treatment planning.

Identification of youth borderline symptomatology is a prerequisite for the provision of intensive and

appropriate care. However, clinicians may be reluctant to officially describe youth in BPD terms, given that BPD is highly stigmatized and commonly viewed as untreatable. Clinicians may also fear that such a description will lead important figures to give up on such youth [9]. Thus, when clinicians report assessment results indicative of borderline pathology, they should simultaneously correct misconceptions and provide psychoeducation about BPD to young clients and their families.

Treatment

Depending on individual needs and available resources, treatment options for youth with BPD may include one or more of the following: medication, hospitalization, individual psychotherapy, group psychotherapy, family therapy, and family psychoeducation. Among adults with severe BPD, multiple medications are often prescribed to help clients manage symptoms ranging from mood swings to impulsivity [12], despite the lack of research evidence for such combinations. Little is known about the use of medications and their effectiveness in the treatment of borderline pathology in youth.

When individuals with BPD attempt suicide, exhibit psychotic symptoms, or experience acute crisis, hospitalization is often the first line of treatment; however, aggressive out-patient treatment with strong therapeutic outreach may be considered as an alternative to hospitalization (see [12]). Once life-threatening behaviors are reduced and hopefully eliminated, treatment may focus on helping clients manage their emotional experiences.

A primary goal of individual psychotherapy is to provide a supportive relationship within which clients can be helped to manage their symptoms and accompanying problems, especially those associated with suicidal thoughts and behaviors. Psychoanalytical approaches to the treatment of BPD use the client–therapist relationship to address problems faced by the client, while cognitive approaches help clients develop more adaptive views of themselves, e.g., as acceptable and valuable human beings, and of the world as a more benevolent and safe place than previously thought. Developing problem-solving skills can also be a part of this approach. Young people who still have relatively concrete cognitive reasoning skills may benefit from behavioral strategies such as modeling and shaping. In terms of social interaction with others, therapists can help youth build a more adaptive and flexible repertoire of responses to improve their ability to relate to and cope with others in their environment or family and social system. Therapists can also teach their young clients to pay attention to internal states experienced while interacting with others and to interpret, respond to, and represent human behavior more accurately, along the lines of Fonagy and Bateman's mentalization-based treatment approach (see [7], where many of the psychotherapy treatment modalities discussed in this section are explored more fully).

Dialectical behavior therapy (DBT) is one of the most effective and widely used treatments for BPD. According to this model, clinicians work with clients, both individually and in groups, to become less impulsive, improve interpersonal communication skills, practice mindfulness, tolerate distress, regulate emotions, cope with post-traumatic stress, and develop self-respect. In DBT, clinicians also help clients to eliminate suicidal and other behaviors, such as substance abuse and unsafe sex, that pose significant risks to well-being. A modified version of DBT appears promising in reducing suicidal behavior among youth [13]. Cognitive analytical therapy (CAT), an approach that draws on cognitive psychology and psychoanalytic object relations theory, appears to help youth with BPD control their externalizing symptoms even after the conclusion of treatment [3].

Family psychoeducation, support, and skill development are often a very important supplement to treatment approaches, given the level of pathology, stress, and dysfunction often present in families of individuals diagnosed with BPD. Family therapies such as Dialectical Behavioral Therapy-Family Skills Training (DBT-FBT) help family members regulate their emotions, improve interpersonal skills, and interact in a more validating manner. Clinicians treating youth can also work with parents to develop more effective parenting strategies. Integrative Borderline Adolescent Family Therapy (I-BAFT) is recommended when substance abuse and BPD are present. Regardless of treatment approach, clinicians treating youth for symptoms of BPD should consider level of development, current contexts in which youth function (e.g., family, school, friendships, early romantic relationships), and current tasks that youth are negotiating within these contexts as they help such youth develop a more integrated sense of self.

Relevance to Childhood Development

While BPD is typically considered an adult disorder, BPD features or symptoms are not uncommon among children and adolescents. Rather, a sizable percentage of youth meet criteria for BPD in treatment settings as well as in the general community, and even more youth experience symptoms or display features of borderline pathology. Such youth tend to have associated problems at school, home, and in interpersonal relationships that interfere with their ability to smoothly transition from one developmental stage to the next. In fact, adolescent symptoms of BPD predict lower levels of functioning and attainment

all the way through middle adulthood, with higher youth symptom levels associated with more severe outcomes later in life.

A comprehensive assessment of youth borderline pathology should take into account both actual and expected levels of development and the contexts in which purported emotions, thoughts, behaviors, and interpersonal relationships characteristic of BPD occur. When symptoms and features are identified early on, interventions can be put in place that help youth, families, and school personnel better understand the nature of borderline pathology, cope with its manifestations, and hopefully reduce the likelihood of adverse outcomes. Parental psychopathology, poor attachment relationships between caregivers and offspring, trauma and abuse all pose serious risks for children's subsequent development of BPD and other forms of psychopathology. If recognized, such risk factors may be addressed early on via parental education and mental health treatment. Access to social support and opportunities to further develop cognitive strengths and interpersonal skills may also help children who are already at risk for developing BPD cultivate resilience.

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Bottom-Up Approach

▶Orton-Gillingham Reading Method

Bowenians

▶Family Therapist

Bowlby's Attachment Theory

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Definition

John Bowlby's Attachment Theory is an integrative model that relies on concepts from psychoanalytic theory,

information processing theory, theories and research on emotion development, and ▶ethology. It describes the central role of attachment to a reliable caregiver in the healthy psychological development of the child, and the significant detrimental effects on mental health when reliable attachments are disrupted or lost. Originally described by Bowlby as a revision of psychoanalytic theory, its emphasis on interpersonal experiences and rejection of Freud's drive theory caused it to be controversial in that community and to be dismissed by many psychoanalysts. It became popular in the 1980s and 1990s among cognitive-behavior therapists who were searching for a comprehensive theory of personality upon which to base their clinical interventions. During the 1990s, as psychoanalysis began to shed its Freudian assumption and to move in a more relational direction, Attachment theory was rediscovered and was enthusiastically utilized by many in that discipline.

Description

Attachment theory originally evolved out of clinical and theoretical psychoanalysis. John Bowlby was a leading British psychoanalyst and child psychiatrist who was trained and practiced traditional Freudian psychoanalysis. In this model, a child's attachment to his or her mother was understood to be derived from, and secondary to, the gratification that derived from feeding and other sources of drive reduction. Bowlby gradually became convinced, through a variety of experiences and sources of data, that this view was incorrect. In his clinical work he had begun to experiment with expansions of the psychoanalytic frame, often working with several members of a family simultaneously. At the same time, his work as a consulting child psychiatrist in the British National Health Service allowed him access to direct observation of children and their parents. He also made an in-depth study of the newly emerging research in child development and in biology, and was impressed by finding such as those reported by Harlow, who found in a study of infant monkeys that those infants choose the comfort of a clothing mother-surrogate over a wire surrogate which offered food. Bowlby's experiences, observations and insights led him to a revolutionary revision of psychoanalytic theory that evolved into an independent theory of child development, the organization of personality, and of developmental and adult psychopathology.

Attachment as a Biological Given

Attachment theory is based on the premise that all human beings are biologically programmed to seek comfort and safety through proximity to a reliable and protective caregiver. Bowlby argued that this is a basic, if not the basic, psychological need in children, and that such needs and behavior can in fact be observed in other species (he argued ethological studies of imprinting supported this conclusion). The primacy of the human need for attachment derives from evolutionary considerations and from the extended period of helplessness and dependency that is experienced by the human child. Individual children would suffer or perish if left to their own devices during infancy and childhood, and humans as a species might face extinction were reliable caretakers unavailable to our young.

Attachment theory also postulates a biologically derived reciprocity on the part of adults, which makes adults ready and willing to serve as attachment figures and caretakers. Bowlby observed that human adult seems to have a universally positive response to babies, young children, and to the young of other species: adults tend to find these persons and creatures to be "cute," "adorable" and so on, and to experience spontaneous desire to cuddle and care for the child in close physical and psychological proximity. This is not accidental, but is part of the human genetic heritage that ensures that the safety of attachment will be available to infants and children who cannot take more of an active role in establishing those contacts.

Attachment in the earlier phases of psychological development therefore is understood to be a mutually established and mutually regulated process: it stems form the intrinsic biological and psychological needs of both parties (infant or child and giver) and is expressed in the behavior of both individuals. Child and caregiver monitor the affective, behavioral, and environmental conditions and make changes in proximity and connectedness through signaling (crying, talking, gesturing) and actions.

The need for safety and comfort in relation to attachment figures persists throughout life, but in the psychologically healthy older child, it is expressed in more subtle, more mature, and often symbolic ways. Attachment theory posits that disturbances of attachment processes in early development may lead to later consequences in intimate interpersonal relationships. These consequences will be explored in a later section of this article.

Exploration: The Attachment Figure as a Safe Haven

Attachment theory states that the need to separate and to explore the world is an equally important and parallel psychological need that also is rooted in the biology of the human species. As a child progresses from infancy

through childhood and adolescence he or she must naturally spend more time at greater distances away from primary attachment figures. The failure to do so will lead to a person whose development is stunted and who able to cope with life is limited and skewed. Exploration of the world is best done gradually, supported by attachment figures who are encouraging and yet watchful, alerting the child to danger and intervening when necessary. Healthy exploration involves repeated "checking in" with the adult and regular periods of returning to that safe haven of attachment. Attachment figures who prematurely allow the child to explore beyond the limits of his or her safety and abilities can be extremely disruptive, as can those adults who inhibit the child's freedom to explore because of the adult's own anxieties and needs for connection.

Safety and Anxiety: The Affective Response to Attachment and Separation

Empirical studies and clinical observations have demonstrated with great redundancy that infants and children experience emotional distress when separated from their caregivers, and that they evince reduction of that distress when re-united. Attachment theory suggests that the negative emotional experiences that are correlated with separation are the precursors of such emotions as sadness, anxiety, and depression.

The Response to Separation: Protest, Detachment, and Despair

Attachment theory postulates that a specific, predictable and regular progression of affective and behavioral reactions occurs when a child is separated from an attachment figure. The first component of this sequence is *Protest*, manifested by crying; angry gestures, facial expressions, and utterances, and attempts to restrain the attachment figure or to find that person. This is followed by the *Detachment* phase, during which the child becomes listless, removed, and affectively cut-off from the world. Seemingly, he or she seems to have concluded that protesting has failed. The final stage of *Despair* has been likened to adult depression. The child is openly sad, distressed and seemingly hopeless about the return of the attachment figure. These emotional and cognitive reactions are powerful and enduring, even when the periods of separation are expectable and of relatively limited duration. Children who have reached the latter two phases of this sequence do not immediately greet the returning caregiver with open arms. They often ignore or respond angrily to his or her return, and a period of repair and re-attachment frequently is necessary.

Loss: The Effects of Unresolved Grief and Mourning

Bowlby's formulation of attachment theory posed a significant challenge to the received wisdom in the fields of child psychiatry and psychoanalysis concerning children's responses to loss. Those disciplines had long held that children younger than adolescence were largely invulnerable to the more serious effects of object loss, such as depression and complicated bereavement, because of their (supposedly) limited affective ties to adults. Bowlby's clinical and theoretical work exposed and contradicted totally this fallacy. Attachment theory argues that children are greatly effected by losses of significant others, and that these losses, if not mourned properly, can and will have permanent ill effects on the child's psychological development and health. Often, it is assumed, these losses are a major component of psychopathology in adulthood.

Why had it been assumed that children did not suffer from loss? An answer can be found in the basic assumptions of attachment theory. Just as children cannot meet their basic needs for security and survival by themselves, and there must be tended to by a caretaking adult, children cannot grieve without adult assistance, example, and support. Often, the very person whose attentions are crucial in this process (perhaps, e.g., the parent who survives the death of a spouse) is limited by grief themselves and cannot be of use to the child in grieving. Also, as Bowlby's research demonstrated, many families are uncomfortable with powerful emotions and work actively to inhibit the emotional reactions of family members, including of children. What had been assumed to be a lack of response to loss was now understood to be the response of the child to environmental failures, neglect, or unavailability. When children do receive the necessary support and guidance after a loss, and they perceive the expression of emotion to be safe and desirable, they will be observed to grieve and mourn much as do adults.

Working Models: The Internalization of Attachment Experiences

The developing child's experiences of attachment and exploration become over time a permanent part of his or her psychology (internalization). Borrowing from cognitive science and information processing theory, Bowlby postulated that the individual builds up intrapsychic representations or working models (similar to the *scheme* in Piagetian theory) of his or her interpersonal world which are generalized perspectives about the availability and reliability of potential attachment figures, and the safety

and permissibility of exploration in relation to those caretakers. These working models are a kind of mathematical summation and averaging of the person's experiences that allow him or her to make predictions about the future and about new interpersonal experiences. Those children who attachment needs have been met, and whose exploration has been encouraged and supported safely by the provision of a safe haven, will naturally establish healthy and optimistic working models of attachment and exploration, and will use these models to identify new persons who are most likely to be consistent with the positive predictions of safety. However, children for whom reliable attachment experiences have been absent or inconsistent, and/or who have lacked a safe haven for exploration are very likely to develop pessimistic and gloomy representational models. In new interpersonal situations these children, and the adult who they become, will predict dire and disappointing interactions that are replicas of earlier events. These persons will therefore find new relationships to be potentially hurtful, fraught with anxiety and the possibility of loss, and therefore will develop coping or compensatory strategies for managing new attachment failures that will further compromise their adaption and psychological health.

Anxious Attachment: The Results of Early Failures of Relatedness

Bowlby reported that those individuals whose early lives, as described above, eventuated in insecure working models of attachment, had few good choices for managing the attendant anxiety that was provoked in new intimate relationships. He described several variants of pathological working models and their intrapsychic and behavioral correlated. The person with an *anxious attachment* style sees and fears rejection, abandonment, and loss at every turn. He or she often attempts to please significant others at every opportunity, displaying a clingy, dependent, and subservient attitude toward the other person. Those whose attachment style is *avoidant* attempt to remain self-sufficient and independent, and are described as aloof or distant by others. This person will become extremely anxious and uncomfortable in intimate situations. The individual who demonstrates a pattern of behavior known as *compulsive caregiving* appears to be repeating the particular failure of attachment that he or she experienced as a child, having been placed in the role of "parentified child" or caregiver to a parent who was incapacitated by psychopathology, physical illness or some other condition. All of these variants of anxious attachment are highly correlated with, and perhaps causative of, psychopathology such as depression, obsessive-compulsive disorder, and anxiety disorders, among many conditions.

Relevance to Childhood Development

Attachment theory provides the student of child development with a theoretical framework that integrates clinical observation with empirical research, and studies of depth psychology with social observations. Attachment theory can explain the ways in which early experiences are internalized and therefore continue to exert an impact on subsequent development and on adult behavior. It also serves as the link between investigations of parent-child interactions and clinical phenomena.

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Bowlby's Stages of Attachment

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Definition

The British psychiatrist and psychoanalyst John Bowlby described four phases in the early development of human attachment. Each phase is characterized by behaviors and, as the child matures, cognitions that are used to maintain proximity to or contact, both emotional and physical, with primarily the mother as well as other figures. Bowlby believed that humans are biologically built to become attached as a survival strategy.

Description

An attachment is an affectional bond that one person has with another, which connects them to each other and usually indicates affection or love. Normally, the first attachment the child forms is to the mother (or primary mother figure), and this attachment develops over time as the child matures. Bowlby developed a theory of human attachment to explain the child's close affectional bond with the mother and based this theory of psychological development in part on and on Darwinian evolutionary principles of survival. He theorized that human

infants – similar to animals – are endowed with species-specific behaviors that promote survival by both keeping the infant in close proximity with others and eliciting their care and protection. Initially he theorized that sucking, clinging, following, crying, and smiling were the behaviors that largely mediated attachment. Later he recognized more sophisticated behavioral systems as integral to attachment and proposed a control systems model in which the initial simple attachment behaviors become part of a goal-corrected behavioral system that is more flexible, purposive, and responsive to feedback from the environment. In contrast to Freud and other psychoanalysts, Bowlby did not believe that infants become attached as an outcome of having its needs gratified by others. Instead he theorized that humans are biologically endowed to become attached and supported his theory with a vast amount of data from studies of both animal behavior and early childhood development. For Bowlby, the nature of the early attachment determined psychological development and emotional well-being and served as a template for later attachments. Bowlby identified four phases in the development of attachment; the time frame he delineated for each phase could be delayed either because of normal individual differences or because of impaired functioning of the mother-child dyad.

Phase 1. Orientation and signals with limited discrimination of figure

In this phase (from birth to 2–3 months), the child's ability to distinguish people is limited, and the child responds in similar ways to all people. A repertoire of simply structured behaviors – orientation toward people, visual and auditory tracking, grasping and reaching, babbling, smiling, and ceasing to cry at the sound of a voice or seeing a face – attract and keep people close to the child. By about 3 months, the child's friendly response is clearly present in all its spontaneity, liveliness, and delight.

Bowlby believed that it is primarily the human response to the child rather than oral gratification (such as the satisfaction of being fed) or gratification of other basic drives or needs that reinforces or modifies these attachment behaviors. How the child reacts (e.g., whether with signs of pleasure or displeasure) to sensory stimuli can greatly increase or decrease the likelihood of their reoccurrence. It is well established that the child's responses are inherently biased toward the development of social interactions. From early on, although the child responds to a broad range of stimuli, the child demonstrates a preference for the human voice and face, for moving versus static objects, and for tactile and kinesthetic stimulation. The mother's ways of handling the young child are also inherently biased toward promoting an early interaction. For example, in cradling the child to her during feeding, the mother brings the child into close proximity, which affords the child the opportunity to be oriented toward the mother, to gaze at her face, and to be in physical contact with her.

Phase 2. Orientation and signals directed toward one or more discriminated figures

During this phase, which lasts until about 6 months of age, the child demonstrates the same friendly responses as evident in the first phase, but this behavior is more marked with the mother than with other individuals. Bowlby's description of the attachment behaviors characteristic of this phase are largely drawn from the research of his colleague Mary Ainsworth. The child greets the mother differently as well as vocalizes and smiles differently with her. The child is more likely to cry at the mother's departure and to stop crying when she returns. Even when held by others, the child is likely to maintain a visual-postural orientation toward the mother. It is also recognized that during this phase the child can establish a pattern of differential behaviors with other familiar people.

Phase 3. Maintenance of proximity to a discriminated figure by means of locomotion as well as signals

In this phase, which lasts through the second year and into the third, the child's primary attachment to the mother is clearly evident. With the onset of locomotion, the child's range of attachment behaviors expands to following the mother as she departs, approaching her upon her return, and using her a home base from which to explore. Concomitantly, the child's generally friendly and nondifferentiating responses to others decreases, and the child reacts with caution and even alarm and withdrawal in the presence of strangers. In the majority of children, fear of strangers is evident by 8 months.

Cognitive development during this phase advances the child's behavior from fixed-action (the essentially instinctive attachment behaviors of the earlier phases) to goal-corrected (purposive and directed at a goal). The child begins to be able to plan and to adjust its behavior to maintain a comfortable proximity to the mother. The child's ability to plan is predicated on the development of working models that the child is beginning to construct from its growing knowledge of the world and people and expectations about them. Whereas earlier the child had no understanding of the mother as a separate individual and generally displayed a fixed pattern of attachment behaviors no matter the situation or response from the environment, the child in the third phase comes to

perceive the mother as someone existing independently in the world and begins to regulate its proximity to the mother using a built-up but still primitive cognitive schemata of its environment and expectations about her whereabouts. This phase overlaps with Piaget's sensorimotor stage and the development of object permanence when the child begins to understands that an object still exists even when it is not visible and will search for a hidden object.

Phase 4. Formation of a goal-corrected partnership

In this phase, which may start in some children by the middle of the third year, the child perceives the mother not only as a separate physical entity but also as someone whose behavior is influenced by her own set-goals. The child's growing cognitive competence, including a capacity for insight, enables it to make inferences about the mother's point of view and the feelings and motives influencing her behavior, factors that can be multivariate and possibly inconsistent and thus not always readily understood. Greater flexibility on the part of the child is required. Previously, proximity was largely decided by the mother; in this final phase, proximity is more mutually negotiated and determined.

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Braille

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Definition

Braille is a reading and writing system that is used by individuals who are vision impaired (see *blindness*). Braille allows individuals who cannot use their sense of sight in reading to instead, read text with their sense of touch. Braille consists of raised dots that form characters. Individuals who are totally blind or legally blind feel these raised dots with their fingertips. This process allows them to create meaning from Braille text, much like a visual reader would from printed text.

Description

Braille characters, also called cells, are typically made up of one to six raised dots that are arranged into rectangular embossed patterns. Each of the rectangular patterns, contain two columns of three dots each. There is also an extended variation of Braille that includes a pattern of eight dots. Punctuation is represented by its own unique set of characters.

Braille characters may be produced using a slate and stylus, a Braille typewriter, or a Perkins Brailler. Similar to printed text, Braille is printed in horizontal lines that are read in a right to left motion. Also similar to printed text, the horizontal lines of Braille are separated by a space. This space assists the reader in differentiating the cells in one line from the cells in the line above and below.

History

Louis Braille, a blind Frenchman teaching at the National Institute for the Blind, devised Braille in 1821. His idea for the Braille system was based on a method of communication originally developed by Charles Barbier. Barbier's method of communication was used by soldiers in the early nineteenth century to communicate silently and without light at night. Barbier's method of communication was found too complex by the soldiers. Louis Braille created the Braille system as a less complex solution. He is credited as the creator of the Braille system which revolutionized written communication for the vision impaired.

Relevance to Childhood Development

Children who are vision impaired may experience educational disadvantages that are connected to their inability or difficulty in seeing printed text. Many children who are totally blind or legally blind experience complications in learning to read. According to the 4, 90% of children who are vision impaired are not taught to read even though Braille exist. The inability to read printed text can lead to other educational obstacles, such as reading in other subject areas. It can also lead to obstacles in completing everyday tasks such as those requiring children to read environmental print.

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Brain

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Synonyms

Cerebral cortex; Cortex; Neo-cortex

Definition

The brain, from Old English *brægen*, is the tissue of the central nervous system (CNS) housed in the skull, composed of neurons and supportive cells (e.g., glial), that is responsible for the direction and coordination of mental and physical processes, learning, and processing sensory information.

Description

The brain is an organ of the CNS. The CNS, which consists of the brain and spinal cord, is connected to the body through a series of afferent and efferent nerve fibers that carry various types of information (e.g., motor, sensory) to and from the brain. The brain itself can be broadly thought of as comprised the cerebral cortex, cerebellum, and brain stem, each discussed in turn.

The cerebral cortex is tissue that makes up most of the brain (approximately 80%), which consists of white and gray matter, and has a folded appearance. Folds of the brain are referred to as gyri. The creases between the folds are referred to as sculi. The cerebral cortex is responsible for higher order cognitive functions such as language, learning, and memory. In general, the cerebral cortex can be thought of as divided into two parts, right and left, called hemispheres, which are relatively symmetrical. The right hemisphere is responsible for motor movements and processing the majority of the sensory information for the left side of the body. The left hemisphere is responsible for motor movements and processing most of the sensory information for the right side of the body. Each hemisphere of the brain is connected by the corpus callosum, which is a series of neural fibers, known as commissural fibers, connecting different areas of the brain, allowing communication back and forth. Each of the two hemispheres of the brain, the right and left, can be further divided into four different lobes: the temporal lobe, frontal lobe, parietal lobe, and the occipital lobe.

With regard to brain functioning, each hemisphere and lobe has a certain amount of specialization, although brain functioning is diffuse, and shared widely among the different areas. The right hemisphere appears more dominate in processing spatial abilities, face recognition, visual imagery, and music, whereas the left hemisphere dominates in processing abilities requiring logic, and language. The *occipital lobe*, which rests at the posterior region of the hemispheres, is involved primarily in processing visual information. The *parietal lobe* is in front of the occipital lobe, yet behind the frontal lobe, and can be though of as resting on top of the brain. The parietal lobe has two distinct roles. The anterior region processes somatic sensation, whereas the posterior region integrates sensory input. The *temporal lobe* is split on each side of the brain, located below the parietal lobe and in front of the occipital lobe. The temporal lobe has been identified in having a multitude of functions. The temporal lobe serves to process sensory input, such as object recognition, auditory information, and memory of sensory experience. Additionally, the temporal lobe plays a role in language and memory. The *frontal lobe* is located at the most anterior part of the brain, just behind the forehead. Primary among its functions concerns temporal organization. The frontal lobe selects and implements behavioral strategies to manage cues from the immediate environment, as well as internal cues, and processes emotions, as well as language. The functions of the frontal lobe are popularly referred to as executive functioning. It is important to note that although the different sections of the cortex have primary responsibilities, the interplay of neural connections between them is complex. Processing occurs throughout the brain in a relatively simultaneous manner, with the different areas of the brain performing operations in concert with each other.

The cerebellum, which is located under the cortex at the base of the skull, is a second major section of the brain. The cerebellum's primary responsibility has to do with the coordination and learning of voluntary and skilled movements. Additionally, the cerebellum plays a role in balance and equilibrium, muscle tone, and posture.

The brainstem is a third major section of the brain. The brainstem is located deep in the brain and controls several processes vital to life, such as the regulation of eating and drinking, sleeping, and body temperature. The brainstem also plays a major role in responding to environmental sensory stimuli, and in movements associated with walking, grooming, and sexual behavior.

In addition to the brain structures previously discussed, there are two additional parts of the forebrain, the limbic system and basal ganglia, which have important roles. The limbic system plays a role in a variety of behaviors including aggressive behavior, sexual behavior, memory, and even personality. The limbic system encompasses several interrelated structures, primary among these are: the hippocampus, amygdala, olfactory bulb, thalamus, and cingulated gyrus. The first of these structures, the hippocampus, is believed to play a role in memory, especially the formation of memory about experienced events, and spatial memory. The amygdala plays a role in the processing of emotional memories, such as fear conditioning. Olfactory, or smell, stimuli is processed by the olfactory bulb. The thalamus is responsible for motor control, and is a primary relay station of sensory information to the cortex. The cingulated gyrus plays a role in the formation and processing of emotion, learning, and memory.

A basic building block to the brain is the neuron. A neuron is a specialized cell in the brain and nervous system that allows for the exchange of information. Similar to all cells, the neuron has a cell body that houses the nucleus, intracellular fluid, mitochondrion, and other organelles. What makes the axon more distinctive, are branch-like structures that extend away from the cell body, dendrites and axons. Dendrites and axons have the unique responsibility of transferring information between the cells. Dendrites are neural fibers that bring information to the cell. The word dendrite comes from a Greek word meaning "tree," which is relevant to its appearance, as dendrites have a branched, treelike appearance. A neuron can have several dendrites, each of which can have a further set of branches, which can ultimately number in the thousands.

The axon is a neural fiber that takes information away from the cell body to other neurons, muscles, or glands. Each neuron has one axon. Axons can be lengthy structures (some over a meter in length) that have branches emerging from them called axon collaterals. The end of the axon can branch out into what are called teleodendria. The end of the teleodendria contains the end foot, or terminal button, that rests close to the dendrite of another neuron. The area between the end foot of one neuron and dendrite of another is called a synapse, the primary communication hub where information between neurons is shared.

The transmission of information across a synapse is part of a series of events that allow neurons to communicate. Communication between neurons is essential to the ability of the brain to perform all its functions. The series of events begins with an action potential, an electrical impulse that allows for the travel of information along an axon. When the action potential arrives at the end of the axon, a series of events occurs that results in the release of chemical messengers, or neurotransmitters, stored in the presynaptic neuron. Neurotransmitters get released across the synapse into the space between the presynaptic axon and postsynaptic dendrite. The space between the presynaptic axon and postsynaptic dendrite is referred to as the synaptic cleft. Neurotransmitters travel across the synaptic cleft and bind to receptor sites on the postsynaptic membrane (i.e., dendrite). Depending on the interplay between the specific neurotransmitters and receptors involved in the process, the postsynaptic cell responds in one of three ways. The postsynaptic cell can continue to send the message along to other neurons in the form of another action potential, stop the message, or initiate a series of chemical reaction sequences changing the message, or bringing about some other change in the cell.

The development of the brain, neurulation, begins 19 days after fertilization [2]. Each brain cell is derived from a stem cell, which is a single, undifferentiated cell in the brain of the embryo. In all, the brain contains about 100 billion cells [9]. A layer of embryonic tissue, the ectoderm, develops into the brain and nervous system. The brain goes through several processes of growth. The fundamental processes of brain development are: neural induction, proliferation of nerve cells and glia, cell migration, cell death, cell differentiation, formation of synapses, and pruning of synapses [4].

During the *neural induction* process, the neural plate develops from the ectoderm and folds into the neural tube at about the third or fourth week after conception. The front of the neural tube forms the brain, the tail forms the spinal cord. The hollow inside of the tube begins to develop into the ventricles, and the lining develops the cells of the brain. The tube closes around 25 days after conception and becomes filled with cerebrospinal fluid, cells divide, and layers then begin to from. The cell division continues in the *neural proliferation* phase until about

the 18th week. During this phase, neurons can be generated upwards of half a million a minute [2]. During *cell migration*, glial cells guide newly forming neurons, or neuroblasts, typically from lower areas of the brain (i.e., ventricular zone) where the proliferation of cells occurs, to higher, or surface areas of the brain. The particular glial cells responsible for this scaffolding effect are radial glia. Cells eventually come to rest at the area they will occupy in the mature brain. The next phase of brain development, *cell death*, occurs when the neurons have reached their destination and synapses have started to form. During the cell death process, several neurons and synapses are eliminated as competition for life sustaining forces, or trophic factors arise. Eventually, the proper number of neurons and synapses is reached [1]. During the process of *cell differentiation*, which can occur at the same time as cell death, neural cells that have reached their destination further differentiate. Two aspects of cell differentiation during this process include the branching out of dendrites, and the guidance of axons to their targets. The *formation of synapses*, or *synaptogenesis*, is a process that begins within weeks of conception, continues at a rapid rate in the first 2–4 months, and may occur throughout life [8]. After birth, during the most active time of synaptogenesis, experience plays a dominate role in determining axon and dendrite architecture. Studies have found that the rate of synaptogenesis differs depending in what area of the cortex the process is taking place [7]. The final process of brain development discussed here, *pruning of synapses*, begins at 7 months, and continues to adolescence. By 21 months, 40% of synapses can be eliminated [2]. The pruning process involves the elimination of synapses, and is considered a part of normal development. Throughout the early years of life, synaptic density reaches its peak, and then levels off to adult levels throughout childhood. As with synaptogenesis, pruning occurs at different rates, depending on what cortex the process is occurring [8].

Another important process of brain development is myelination. Myelination allows for better and faster communication between axons. Myelination is a process by which axons become covered in a fatty substance, myelin. Myelin is an insulation that surrounds axon fibers and allows information to be moved along the axon at a faster rate. Myelinated axons can carry messages 50–100 times faster than unmyelinated axons [10]. A considerable portion of myelination occurs before birth, with particular emphasis between 22 and 24 weeks, but continues into adulthood. Schwann cells, a support cell to the CNS, forms the myelin around the axon. The myelin is formed in segments around the axon, as opposed to one continuous layer of insulation. The spaces between the sections of myelin are referred to as nodes of Ranvier. The distance between the segments of myelin play a central role in how fast information can travel along that axon.

Whereas the brain can be divided into left and right hemispheres, with each side relatively specialized for a certain set of mental functions (e.g., language on the left), the brain can also be thought of as being divided into anterior and posterior regions, which also have a localization of function. The anterior region of the brain primarily handles motor functions and the posterior region primarily handles sensory functions. Alexander Luria, a famous Soviet neuropsychologist and developmental psychologist, advanced this theory in the 1960s. The two regions of the brain are separated by the central sculus, which is a deep groove, or fissure, into anterior and posterior regions. Adjacent to the central sculus, just anterior, is the motor strip, also referred to as the motor cortex, which is a narrow band running across the brain. Tissue of the motor strip, is proportional to the quantity to which motor control is required by a particular body part. The role of the motor cortex in movement is somewhat controversial. It is thought that cells of the motor cortex instruct muscle movements in a direct fashion, causing them to contract. Other lines of research hypothesize that the cells of the motor cortex specify the target of movement. In general, the motor cortex has pathways which extend outward to the spinal cord. Axons, in the form of large pyramidal cells, and long support axons, diffuse into several specific specialized tracts to assist in transferring information regarding movement.

Directly posterior to the central sculus is the sensory strip, also referred to as the sensory cortex or somatasensory cortex, which, like the motor strip, is a narrow band running across the brain. The sensory strip receives input from external as well as internal sensory stimuli. Similar to the motor strip, the amount of tissue in the sensory strip is proportional to the degree of sensory information associated with certain body locations, based on function. For example, more tissue of the sensory strip is dedicated to the hands as opposed to the arm, as the hands require a more developed sense of touch.

Both motor and sensory stimuli are processed in localized sections of the brain (e.g., sensory information in the posterior regions), however, the complete integration of this information for conscious perception involves processing in diffuse association areas, as well. Different theories have been proposed to address the

functional organization of the cortex, in order to describe how the primary processing areas and association areas of the brain work together to synthesize information. The brain synthesizes information in a way that allows the phenomenological experience to be one of a unified whole, with spatial and temporal continuity. Given the distributed nature of processing around the brain, researchers have not been able to fully explain how all areas of the brain come together to incorporate their information into an integrated whole for the subjective experience. This area researchers struggle to explain is referred to as the binding problem. Different models have been proposed to explain the functional organization of the brain, which work to address the binding problem.

Luria [11] believed that sensory stimuli were transmitted by organs to a areas of the sensory cortex to be processed, then to a secondary association cortex, where meaning was assigned to the sensory input, and finally to a tertiary association cortex, where it was integrated with other cortical functions, resulting in symbolic processes. "For example, the perception of any particular series of movements could be processed by the sensory cortex, while secondary processing areas would indicate what the movements constituted (e.g., orchestra concert, football game), and finally, the tertiary areas would synthesize information about the stimuli into what could be referred to as knowledge (e.g., the song playing by the orchestra is recognized as Debussy's Pre´lude a' l'Apre's-midi d'un faune)."

A more contemporary theory of functional organization is the distributed hierarchical model, proposed by Felleman and Van Essen [5]. The distributed hierarchical model proposes a more simple organization of sensory processing in the cortex. The central tenet of the Fellman and Van Essen model suggests there are several hierarchical links between the sensory and motor areas of the brain. Within these links there are connections to other areas of the brain (e.g., limbic system). The essential hypothesis of the distributed hierarchical model purports that depending on what property of the brain is required to interpret a situation or solve a problem (e.g., color information, size information), the brain has developed cortical association areas which can communicate with each other to simultaneously pass on the information. The cortical activity is influenced by feedback loops from other parts of cortex, as well as subcortical regions. At times, all of these cortical areas are summoned simultaneously in order for binding to occur, and symbolic processes to result.

Relevance to Childhood Development

The brain of a child goes through a pace of maturation unmatched by any other phase of life. At birth, the child's brain, in such an immature state, renders the child dependent upon others for survival. The child merely acts upon instinct to obtain nourishment and attempts to survive. As the child grows, the brain matures, and the child is eventually able to perform more sophisticated cognitive functions (e.g., language, consciousness). Brain maturation takes a considerable amount of time, many years, with later developing areas, such as the frontal cortex, not fully developing until late adolescence [6, 12]. Brain processes such as synaptogenesis, pruning, and myelenation continue to organize the brain into emerging adulthood [7].

Life experience shapes the architecture and function of the growing brain, thus, any aspect interfering with brain growth in childhood can potentially have detrimental, far reaching effects (e.g., injury, neglect). These effects can impact any aspect of the individual's functioning mediated by the brain (e.g., learning, motor coordination). Along similar lines, an environment rich and complex can work to benefit the growing child's brain development. Those environmental aspects that can harm or benefit a child's brain maturation come in many forms, including caregiver bonding, nutrition, caregiver responsiveness, exposure to language, and learning environments. Structural changes in the brain dependent upon environmental conditions can affect brain size, glial cell density, density of dendrites, and dendrite length, among others.

The developing brain of a child has more plasticity than the adult brain, making it better able to compensate for insult. Plasticity refers to the capability of the brain to change in response to an injury, allowing it to compensate for the loss of any particular function. Before age five, an injury to the brain can be almost fully compensated for by rerouting and restructuring neural networks to other parts of the brain [3]. For example, language typically develops in the left-hemisphere, but can be rerouted in young children to the right hemisphere in the face of a brain injury to the left hemisphere [13]. However, injury before the age of 1 year can have more detrimental effects on development with little or no ability for the brain to compensate.

Critical periods have been identified as a particularly sensitive periods in brain development where certain conditions or experiences in the environment need to be present in order for a child's brain to make appropriate connections. Critical periods can exist parentally, as well as

after birth. Several mental processes can be affected by lack of appropriate environmental conditions, including vision and development of language.

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Brain Abnormalities

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Synonyms

Neurological

Definition

The term *brain abnormalities*, refers to any atypical feature in brain functioning, structure or biochemical levels. The etiologies of abnormalities differ widely, from genetic, parinatal compactions, developmental and traumatic disorders, toxins and diseases of the mother and/or child. The severity of the abnormalities differ widely, and the extent to which they are obvious in the patient is not always predictable.

Description

Brain abnormalities are wide ranging and can be both organic, developmental or a combination of both in origin. Research has linked the presence of brain abnormalities to a variety of conditions including developmental disorders such as Autism [2], Schizophrenia [3], Alcoholism [5], various types of brain tumors, and dementias.

With the remarkably complex nature of early brain development, human brain is extremely susceptible to chemical imbalances, problems with infections, and malnutrition. All these factors can interact in the developing brain to cause both functional and physical abnormalities, which can have wide ranging consequences. The developing brain is especially susceptible to chemical imbalances. For example, in a mature brain, thyroid malfunctioning can lead to lethargy. In a developing brain however thyroid malfunction can lead to permanent mental retardation. Details of brain developments are given in Table 1 the *Handbook of school neuropsychology* which details some of the more common abnormalities in brain development [4].

Relevance to Child Development

Neurological development begins at conception and is an orderly process vulnerable to interference [1]. Brain abnormalities in children can be additive, with problems in early development leading or creating other problems later in life. For this reason, it is extremely important for psychologists working with children to be aware that multiple factors may contribute to the interference of normal brain development from conception through adolescence [6]. Unfortunately, there is a high degree of latitude when it comes to developmental trajectories especially in children and so global statements of brain impairments are difficult to make with much confidence. For a more in-depth discussion of different brain abnormalities particular to children refer to the chapter entitled Abnormalities of neurological development in *The handbook of school neuropsychology* (2003)[6].

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Brain Abnormalities. Table 1 Common abnormalities in brain development (from The Handbook of School Neuropsychology (2005))

Abnormality	Description	Possible causes	Other associated features
Agenesis of corpus callosum	Complete or partial absence of the corpus callosum	Genetically transmitted in some cases; metabolic disorders; other teratogens	Anterior commissure ay become hypertrophied to compensate, mental retardation, seizure disorder, language disorders
Anencephaly	Failure of neuronal tube to close at rostral end; absence of differentiated cerebral hemispheres, diencephalon, and midbrain	Maternal diabetes, radiation, neurotoxins, excess vitamin A	Possibly no development of spinal cord, distorted facial features
Cerebral asymmetry	Hemispheres are of significantly unequal size	Variable	Reading disorders
Down Syndrome (trisomy 21)	Genetic disorder involving chromosome 21	Genetically transmitted, autosomal disorder	Mental retardation, dysmorphic facial features, brachycephaly, brushfield sports, short/broad neck, broad/ stubby hands and feet, seizure disorders, other medical difficulties, dementia, alzheimer's disease, death
Dysplasia (heterotopia)	Development of abnormal cell clusters when migration is interrupted or stops prematurely; the clusters are in the wrong location for their genetically coded function	Presence of teratogens; mechanisms that interfere or disrupt process are usually unknown	Developmental disorders, learning disabilities, attention-deficit/ hyperactivity disorder; some may be asymptomatic
Fetal alcohol syndrome	Syndrome caused by maternal consumption of alcohol or ethanol; associated with malformations of neural tube development, including holoprosencephaly, myelomeningocele, and spina bifida	Maternal consumption of alcohol or ethanol	Dysmorphic facial feature, microcephaly, cortical thinning, prenatal and/or postnatal growth deficiency, learning disorders, attention-deficit/hyperactivity disorder, memory loss, perceptual problems, delayed adaptive behavior, mild mental retardation
Microencephaly	Subnormal brain size, small frontal and occipital lobes small cerebellum, reduced white matter, normal-size basal ganglia	Genetically transmitted, due to deletions or other transformations, malnutrition, metabolic disorders, inflammatory disease, radiation during first trimester, other teratogens	Small head, thickened scalp, absent forehead, disproportionate facial features, possible decreased cognitive ability and learning disabilities
Spina bifida	Failure of neural tube to close at caudal end; malformation of spinal cord, vertebral column and individual vertebrae	Maternal fevers, intrauterine viral infections, hormonal effects, vitamin deficiencies, excess of vitamin A, maternal diabetes, maternal alcohol use, other teratogens	Visible lesion on back, lipomas, decreased sensitivity to pain, paralysis, weakness of lower extremities, incontinence, hydrocephalus, meningitis, pneumonia

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Brain Cells

►Neurons

Brain Damage

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Synonyms

Brain disorders; Brain impairment; Brain injury; Frontal lesion; Head injury

Definition

Any form of compromise to brain either pre or post birth, congenital or traumatic.

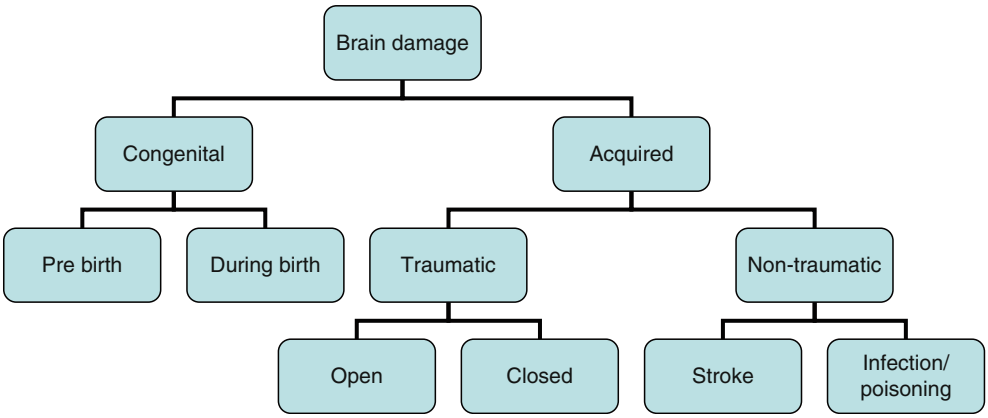
Description

The human brain is a complex organ about the size of a large grapefruit that allows us to think, move, feel see, hear, taste, and smell. Not surprisingly any injury to the brain can have a substantial impact on who we are and how we function in our environment. The brain is protected in a number of ways. The Blood brain barrier which protects the brain from disease (blood vessels of the central nervous system (CNS) lack the ability to transport large molecules across their walls) by the dura, a tough translucent membrane which covers the brain, and cerebral spinal fluid (CFS) a clear watery liquid that surrounds the brain and inside the skull [18]. However, damage can still occur and the most common ways that this can occur are outline in Fig. 1.

Congenital

Pre-Birth – Brain damage may occur prior to birth related to early damage to the embryo or fetus [1]. This may occur for a number of reasons including the ingestion of toxins by the mother i.e., fetal alcohol syndrome caused by alcohol consumption by the mother, or viral infections experienced by the mother during pregnancy. Pre-birth brain damage may also be related to environmental factors such as maternal malnutrition [1].

During Birth – Prematurity may result in brain damage as brain development may be interrupted. In addition problems during the birth process may lead to early brain damage [1]. For example, insufficient oxygen to the brain may result in anoxia or hypoxia (anoxia refers to a condition in which there is absences of oxygen supply to the organs tissue although there is adequate blood flow to the tissue [18].



Brain Damage. Fig.1 Schematic representation of the most common pathways to brain damage.

Hypoxia is a condition in which there is a decrease of oxygen to the tissue, however, these terms are often used interchangeably). When there is an insufficient supply of oxygen to the brain then brain tissue begins to be damaged [18].

Acquired

Strokes – Strokes are very common in the elderly. A stroke may involve a blockage by a blood clot or embolism being lodged in an artery (embolic stroke) or a bursting of an artery (haemorrhagic stroke) [7]. The situation may be aggravated by atherosclerosis (build up of plague on walls of artery). In both instances areas of the brain are deprived of oxygen causing a hypoxic or anoxic event [7]. Anoxia and hypoxia can create psychological and neurological abnormalities because of damage to the brain. Some problems seen after anoxia include metal confusion, personality changes and amnesia [7].

Infection – Meningitis is an inflammation of the brain tissue. It is caused by a range of different bacteria and viruses that can infect the tissues covering the brain [7]. Viral encephalitis is inflammation of the brain caused by a virus. Some viral diseases, such as measles and rubella, can also result in the inflammation of the brain [7].

Poisoning – Different poisons may also cause brain damage, for example, lead or Carbon Monoxide [18].

Traumatic Brain injury – Traumatic brain injury (TBI) is one of the most common injury events, affecting 20% children prior to 14 years of age [21]. Acutely, children who sustain TBI are at high risk for disruptive behavior [10, 20], social [9, 15, 19], attentional [2], language [24] and memory problems [5, 6]. Children who experience TBI during the preschool years appear to be particularly vulnerable to adverse outcomes [4, 6, 14]. Behavioral problems are reported as the most difficult TBI outcome to manage. The resulting unmanaged behavior commonly leads to expulsion from school, rejection by peers and difficulties with siblings [11, 12]. Moreover, secondary problems such as disruptive behavior, alcohol and substance abuse and youth offending more likely during adolescence [13, 14, 16, 22, 23].

There are two broad classifications of traumatic brain injury: open and closed.

Open head injury occurs when the skull is penetrated by a sharp instrument (such as a knife) or an explosive missile (such as a bullet or shell fragments). In penetrating head injuries, tissue damage will be found at the point of penetration and surrounding the path of the intruding object.

Closed head injury is primarily caused by a blunt impact or blow to the head without penetrating the skull. The most common form of brain damage is caused by closed head injury. Consequences of a closed head injury can be swelling, increased inter cranial pressure, and tissue compression.

Relevance to Childhood Disorders

As has been outlined here brain damage may occur via a variety of different routes. Some of these are more frequent than others. For example, while stroke would be a relatively rare event during childhood traumatic brain injury is an extremely common occurrence. Childhood is characterized by developmental change and any compromise to brain functioning may interrupt this process. Children who experience brain damage may be impaired academically and socially. Moreover, this interruption to the developmental process may extend into adulthood. Brain damage in childhood has been associated with behavioral problems such as Attention Deficit and conduct disorder, and academic problems such as difficulties learning to read or problems with arithmetic [18]. The extent of any damage will to a large extent depend on the degree to which the brain has been damage and the child's environment [8] Children who are injured early in the developmental process may be more vulnerable to ongoing problems as they have less pre-damage information which they can draw on [3, 20]. As a degree of plasticity is present during childhood early identification and intervention is essential for optimal outcomes.

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Brain Development

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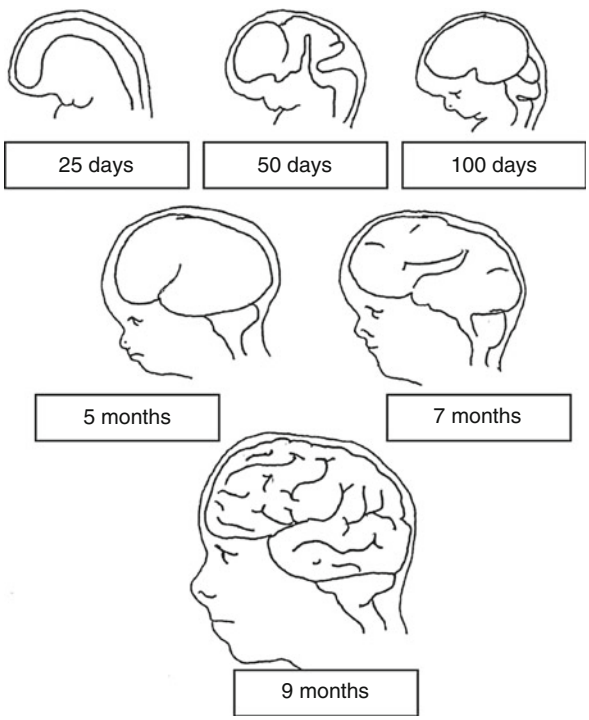
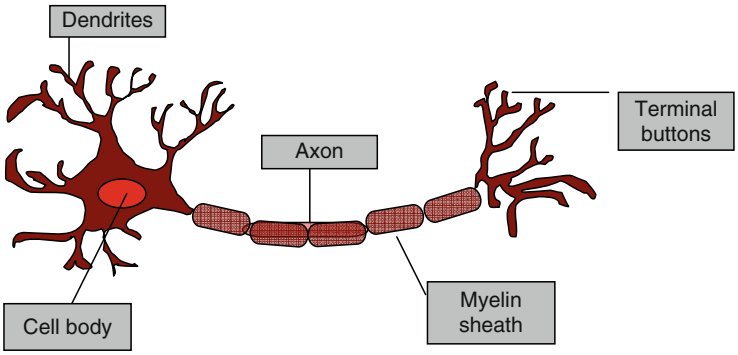
Definition

Brain development begins very early in the embryonic stage. The neural tube forms into the structure that we call the brain (see Fig. 1). The development of the brain occurs in several stages. These stages include cell proliferation, cell migration, cell differentiation, dendritic and axonal growth, cell and axonal death and gliogenesis [4].

The neural tube consists of cells (neurons and glial) that will form the central nervous system. Neurons are cells that communicate to each other through the release of chemicals and glial cells are support cells that, for example, remove unwanted debris or form the myelin insulation around the axons of many neurons. As the brain forms, neurons (see Fig. 2) migrate to specific areas to form connections and perform their respective functions. For example, some neurons will migrate to the occipital lobe at the back of the brain to become vision



Brain Development. Fig. 1 Development of the human brain.



Brain Development. Fig. 2 A neuron.

neurons. The developing brain is particularly vulnerable to toxins and maternal stress during the time of neuronal migration and connection making [1, 5].

The generation of neurons is so rapid during this early period of development that to achieve the 100 billion neurons typical of a new born human brain, approximately 250,000 neurons are generated each minute and each neuron forms approximately 15,000 connections [4]. Interestingly, the brain overproduces neurons and an important part of brain development is that the extra cells die off and the extra connections are lost. It is thought that a variety of developmental disorders may be due to the failure of the developing brain to engage in this neuronal loss [2].

Relevance to Childhood Development

By the time a child is born, they have generated almost all of the neurons that they will ever have. However, the brain is the least developed organ at birth and weighs approximately 25% of the average adult brain. By the time a child is 3 years old their brain will weigh 80% of an adult brain [4]. This growth represents the formation of trillions of connections between the cells of the brain. Although the "raw materials" (neurons) have been generated prenatally, the environment now has an enormous impact on how these neurons connect with each other.

In the child's first year of life, a number of emerging psychological developments occur that correspond to changes in the developing brain. At 2–3 months, a number of newborn reflexes disappear, for example, the palmar grasp and the Babinski reflex. This is likely due to cortical inhibition of brainstem neurons [3]. This inhibition may also be responsible for the reduction in crying during this period. Another development at 2–3 months is the ability to recruit and sustain attention to a stimulus. Researchers have suggested this is due to the hippocampal maturation that occurs at this time [3]. At 7–12 months, a child experiences an enhancement of working memory that is accompanied by a growth spurt in the prefrontal cortex. Patterns of growth in the amygdala and prefrontal cortex are also likely to be associated with the emergence of separation and stranger fear at this stage of development. The ability to adjust sensory motor structures to attain a goal also emerges between 7 and 12 months. For example, 5 month olds will use both hands to reach for an object regardless of size, whereas, 8 months olds will reach toward a small object with one hand and only a larger object with both hands [3].

The second year sees the emergence of the ability to comprehend and express speech, the ability to infer selected mental states in others and the first signs of awareness of their own feelings and intentions. The emergence of speech coincides with dendritic growth in Broca's area and the corpus callosum [3]. Likewise, the limbic system matures and this corresponds to the enhanced emotional processing.

Between ages 2 and 8 years, a child develops a set of universal skills that fall under the umbrella of (1) the ability to integrate the past with the present (conservation), (2) an expanded reliance on semantic networks, and (3) an ability to detect shared relations. The first skill was classically demonstrated by Piaget (1950, as cited in [3]). When a child is shown two identical balls of clay he/she can declare that they are the same size, but when one is rolled into a sausage shape, many 4 year olds will answer this question independently of the first and declare the sausage is bigger. Most 7 year olds will demonstrate the emergence of conservation and declare they are still the same. Utilizing semantic networks means that more developed children (i.e., 7 year olds) can group together information into semantic categories. This has obvious advantages in learning new information and improving memory function. Likewise, the ability to understand the shared relations of objects and events (i.e., that "smaller" and "bigger" are not absolute but refer to the relationship

between objects) is functionally adaptive [3]. The development of these skills requires the coordination of many brain areas and it is a new level of *connectivity* in the brain that allows for such developmental advances. Another important feature of brain development during this stage of life is that the number of synapses eliminated exceeds the number of new synapses. This counter-intuitive event reflects that the connections that have proven adaptive are strengthening while those that have not proven adaptive are simply being eliminated [3].

This elimination or synaptic pruning continues during adolescence. Pruning of synapses in the prefrontal cortex and the myelination of the axons that connect the prefrontal cortex to other parts of the brain are the hallmarks of brain development during adolescence [3, 6]. While many other parts of the brain have fully developed already, the frontal lobes are the last to do so and do not reach full maturity until after puberty. It is during adolescence that we see the emergence and enhancement of the executive functions that are subserved by the prefrontal cortex, such as planning, cognitive flexibility and logical reasoning.

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Brain Disorders

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Synonyms

Brain damage; Neurological disorders; Traumatic brain injury

Definition

A brain disorder is any disorder or disease of the brain. There are hundreds of documented disorders that can affect the brain. The most common, however, are usually classified in terms of their method of origin. These include neurogenetic diseases, neurodevelopmental disorders, degenerative diseases, metabolic diseases, traumatic brain injury, brain tumors, and psychological/mental disorders.

Description

Due to the high numbers of known brain disorders, and their increasing complexity and variability, only a cursory explanation will be provided for this entry. Each disorder will be described in terms of their root of origin. Please note that many of the disorders mentioned can be classified into more than one category.

Neurogenetic Disease

These disorders, also referred to as inborn or genetic brain disorders, are caused by a variation or mutation of the genes that result in an impairment of the development and function of the brain. Some of these disorders are due to random gene mutations or mutations due to environmental exposures, while others are inherited though the passing down of mutated genes from parent to child. Examples of genetic brain disorders include Gaucher disease, Krabbe disease, Lesch-Nyhan syndrome, Tay-Sachs disease, Down Syndrome, Fragile-X syndrome, Spina Bifida, and Wilson disease. The symptoms of these disorders are varied, ranging from mild retardation to severe disability and death.

Neurodevelopmental Disorder

A neurodevelopmental disorder, or a disorder of neural development, is an impairment of the growth and development of the brain or central nervous system. These disorders are often classified by their direct affects on emotion, learning ability, and memory. These disorders can include Autism and Autism Spectrum Disorders, learning disorders, epilepsy, speech and language disorders, and other diseases that incur neurodevelopmental consequences.

Degenerative Disease

A degenerative brain disease is often diagnosed by the progressive worsening or loss of brain function over time. These disorders can be genetic or caused by environmental influences. Though these diseases can occur at developmental periods, many of the disorders are more common in elderly patients. These disorders include Alzheimer's disease, Amyotrophic lateral sclerosis (ALS), Huntington's disease, Parkinson's disease, and Spinal

muscular atrophy. Other degenerative brain disorders can be a result of stroke, old age, brain injury, chronic alcohol and drug use, and exposure to viruses such as AIDS and Creutzfeldt-Jakob disease (Mad Cow Disease).

Metabolic Brain Disease

Metabolic brain disorders produce changes in brain metabolism and structure, resulting in changes in enzyme function, protein formation, and cellular expression. These disorders can include primary (disorders intrinsic/specific to the brain) and secondary (disorders extracranial/outside of the brain) metabolic conditions that adversely affect brain function. These disorders lead to accumulation of materials in the brain, lessened production of certain enzymes, or toxic levels of certain materials in the brain and spinal fluid. These disorders include Phenylketonurias, Maple-Syrup Urine Disease, Glutamine Deficiency, MELAS Syndrome, Reye syndrome and Encephalopathy.

Traumatic Brain Injury

Traumatic brain injury (TBI, also called intracranial injury) occurs when an outside force traumatically injures the brain. TBI is often classified based on severity, mechanism, or other features of the injury type. TBI can cause varied levels of physical, cognitive, emotional, and behavioral effects, and outcome can range from complete recovery to permanent disability or death. TBI can be a result of car accidents, sports injuries, child abuse and shaken baby syndrome, and war-related incidents (such as exposure to nearby explosions).

Brain Tumors

Brain cancer, or brain tumors, is an abnormal growth of cells within the brain or inside the skull, which can be cancerous or non-cancerous (benign). These tumors can occur within the brain tissue (in the neurons, glial cells, and blood vessels), in the cranial nerves, in the tissues surrounding the brain, in the skull bones, or within the brain glands (pituitary and pineal gland). Brain tumors can also form as a result of cancer that has spread from other organs of the body (metastatic tumors). These tumors can cause severe damage to brain, including loss of functioning such as paralysis, blindness, loss of speech and cognition disabilities, and other varied effects.

Psychological/Mental Disorders

A psychological or mental disorder, also referred to as mental illness, is a psychological or behavioral pattern that occurs in an individual and causes distress or disability. These disorders are characterized by abnormalities in cognition, emotion or mood, or the highest integrative aspects of behavior, such as social interactions or planning of future activities. Professionals have classified some of these high numbers of psychological disorders into the following categories: dissociative disorders, mood disorders, anxiety disorders, psychotic disorders, eating disorders, developmental disorders, personality disorders, ambulatory disorders. However, there are many other disorders that fall into additional categories.

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Brain Hemispheres

►Hemispheres of the Brain

Brain Imaging

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Synonyms

Functional imaging; Neuroimaging; Structural imaging

Definition

A group of methods used in research and clinical practice that examines and provides an image of the brain anatomy.

Description

The primary purpose of brain imaging is to produce an image of the structure of the brain for examination of

function. It is used to show a relationship between brain structure and behavior, and to record brain activity during behavior and psychological tasks. In certain brain imaging methods, behaviors are elicited to study the activity in response to the stimulus which is termed evoked potentials or evoked responses. Another purpose is to study the effects of brain damage. Finally, brain imaging is also utilized to research the outcome of stimulating specific brain areas. Both invasive (i.e., inserting electrodes) and noninvasive (i.e., magnetic field or chemical injection) procedures can be used to accomplish stimulation [2].

Common brain imaging techniques include: Computerized axial tomography (CT or CAT scan), in which dye is injected into the bloodstream and the CT scanner uses X-rays to take measurements and generate an image of the brain; Electroencephalograph (EEG), in which electrical brain activity is measured noninvasively via electrodes attached to the scalp; Magnetoencephalograph (MEG), which provides a record of brain activity that is produced by magnetic fields; Positron-emission tomography (PET), which produces a high resolution representation of the brain by the release of radioactivity from chemicals injected into the bloodstream; Single Photon Emission Computerized Tomography (SPECT), which provides a computer generated three-dimensional image of the brain by the use of gamma rays produced from gamma emitting radioisotope injected into the bloodstream; Magnetic resonance imaging (MRI), which produces an image of the brain by utilizing a magnetic field, radio frequency, and measuring the electromagnetic energy created; and Functional magnetic resonance imaging (fMRI), which detects changes in the levels of oxygen in various brain activity areas [1–3].

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Brain Impairment

▶Brain Damage

Brain Injury

▶Brain Damage
▶Frontal Lesion
▶Traumatic Brain Injury

Brain Malleability

▶Plasticity of the Brain

Brain Mapping MRI

▶Functional Magnetic Resonance Imaging

Brain MRI

▶Functional Magnetic Resonance Imaging

Brain Stem

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Synonyms

Hindbrain; Midbrain; Upper spinal cord

Definition

The brain stem is located directly above the spinal cord, directly within the cerebellum, and directly below the cortex of the brain. It is the most basic and primitive portion of the brain; its main contribution is to regulate homeostatic functions that are automatic and thus occur pre-consciously.

Description

Arousal, blood pressure, heart rate, respiratory rhythms, the sleep-wake cycle, sensation, motion, and the perception of pain are all controlled and synchronized by the brain stem. The brain stem is the first portion of the brain

to develop, and carries out vital visceral functions. These functions must operate even before the human brain evolves into an organ that reasons, analyzes, and comprehends, and while the brain is asleep or otherwise dissociated. Because the brain stem is the lowest portion of the brain – or toward the "bottom" of the brain, it is the first part of the brain to process incoming signals, both internal and external. Thus, it influences the type of signal the entire brain receives; for example, fear, joy, or uncertainty. Immediate, almost reflexive responses humans make that seem irrational are often representative of brain stem influenced behavior. Our initial reactions are often based on our brain stem's "perception" of a situation and occur before our rational cortex can make sense of the situation and elicit a logical, measured response.

The brain stem extends contiguously from the spinal cord, and thus its appearance is largely similar to the spinal cord; it is much smaller and more solid than the soft and wrinkled cortex. The brain stem consists of neurons ("brain cells") and glial cells (which maintain and facilitate neurons) that communicate with each other via sending and receiving diverse chemicals called neurotransmitters. Some neurons have only a local effect because their axons (neural fibers that extend from the cell body and include the sites of neurotransmitter emission) are short, and other neurons have axons that extend throughout the brain and considerable portions of the central nervous system. Moreover, some neurons in the brain stem work in a lateral manner and communicate solely within the brain stem; however, most neurons in the brain stem communicate in ascending and descending pathways that influence the cortex and corticospinal motor neurons [2].

The brain stem consists of three of the six sections of the brain that arise from the developing neural tube in a process called neuralation [4], and in its fully developed state the three major parts of the brain stem are called the pons (or hindbrain), the medulla (or medulla oblongata), and the midbrain. The pons is largely responsible for dissemination of information from the brain stem to the rest of the brain. The reticular formation, or the reticular activating system, is located inside the pons, and mediates alertness, arousal, and attention. The medulla regulates blood pressure, respiration, and digestion, and the midbrain relays audio and visual information and regulates saccadic eye movements.

The homeostatic functions of sleeping, breathing, heart rate, and body temperature are the most visceral activities the brain stem governs. The brain stem contains several excitatory and inhibitory neurotransmitters (glutamate and GABA, or gamma-aminobutyric acid, respectively) [9] that are able to attenuate incoming sensory information when the body needs sleep, arouse the central nervous system when circumstances require rapt attention, and generally inhibit and excite as necessary to maintain consistent rhythmic regulation. The brain stem supports the rest of the brain and allows humans to grow and learn uninterrupted. A malfunctioning brain stem creates chaos; for example, unpredictable, primitive actions, arousal or sleep and dissociation at the wrong moments, or the inability to attend to stimuli long enough to learn.

The brain stem's role in sensation is diverse. Cranial nerves connected to the brain stem receive input primarily from the face and neck, but also from the body's extremities. Auditory sections of the brain stem compare incoming information in order to estimate where in space a sound exists. Gustatory portions of the brain stem signal satiety levels. Visual portions communicate and integrate eye, head, and trunk positions to facilitate balance. Moreover, our first understanding of our environment is interpreted by the brain stem; only later does our cortex take over by integrating and making sense of incoming signals concerning our surroundings. For example, if you are on a diet, your brain stem will communicate that you are not full after eating a small meal. However, your cortex, which understands the purpose of your choice to eat a lighter meal, can then communicate to the brain stem that though you may not be full, you have had enough, and there is no reason to fear for a lack of food.

The brain stem is surrounded by the cerebellum, which regulates coordination, and connects the spinal cord to the brain's motor cortex. Therefore, the brain stem is vital in the body's ability to move. Two pathways are crucial to the brain stem's involvement in motion. The medial pathway controls posture, and the lateral pathway controls purposeful motor actions, such as reaching for an item [3]. Further, Parkinson's disease sufferers often have their symptoms traced to a malfunctioning neurotransmitter balance in their brain stem [1].

Norepinephrine, dopamine, and serotonin neurotransmitters reside in and are disseminated by the brain stem [4]. Thus, signals that pertain to arousal, motion, and mood and bodily homeostasis, respectively, are first mediated by the brain stem. Depending on axonal length, signals emanating from the brain stem that transmit these three neurotransmitters can directly influence the entire brain. For example, we often may not be sure why we have the sensation of fear or unrest in certain situations. The likely explanation is that our brain stem perceived an object, person, or situation as unfamiliar or alarming and set off a cascade of arousal signals. These signals

then influenced our conscious perception before our cortex was able to re-communicate with the brain stem that the particular object, person, or place was safe.

Recent research further highlights the function and importance of the brain stem. Lam and Place [5] observed a child who suffered moderate brain stem injury. Initially, the child's major homeostatic functions seemed normal, as well as her motor skills. However, only a day later the child returned with a rise in temperature, respiratory difficulty, a partially paralyzed and droopy right side of her face, and a vomit reflex that prevented her from ingesting enough food. Because at intake not all of these conditions had been evident and because a computed tomography (CT) scan did not indicate any brain stem damage, other conditions, such as pneumonia, were suspected. The real source of the child's symptoms was not evinced until later than it should have been. Thus, whenever a child suffers traumatic brain insults, neurological exams should be intense and brain stem damage should be suspected even if well-respected CT scans do not initially show damage. Because the brain stem affects so many vital functions, even small amounts of damage can result in multiple negative effects.

Additionally, the role of neuronal cell death in the brain stems of children with sudden infant death syndrome (SIDS) has recently been further explored [6]. Apoptosis (planned cell death) is evident in the medulla of children with SIDS, and was found to be exacerbated by lying prone while sleeping (on one's belly), by cigarette smoke exposure, and by being male. There is speculation that compromised respiratory systems promote apoptosis and that males are more susceptible to the apoptotic effects of a strained system.

Relevance to Childhood Development

When the brain stem is affected by traumatic brain injury (TBI), many effects are seen in the functioning of a child. A severely injured brain stem often causes death, and partially injured brain stems can produce a host of complications: difficulties with sleep cycles and REM sleep, respiratory issues, irregular heart rates, abnormally high or low blood pressure, impulsive actions that arise from issues with goal-directed motor movement, trouble with balance and posture, difficulty tasting, lack of saccadic eye movements, and poor perception of sound location. However, it is important to understand that explicitly recognizable TBI is not the only cause of brain stem dysfunction.

According to Perry [7], a dysregulated brain stem is often the result of extreme neglect, sexual abuse, or physical abuse during a child's early, critical years. The brain stem, just like the brain in its entirety, has critical and sensitive periods in which certain sensory experiences are necessary to elicit normal development. The brain stem is the first part of the brain to fully develop, so it is often most affected by early insults. One way in which trauma and neglect affect the development of the brain stem is because the reticular formation, which regulates arousal, is either under stimulated or is overused and stressed. Thus, the child's brain stem defaults to sending either extreme amounts of inhibitory signals or extreme and random amounts of excitatory signals. Inhibitory signals are manifest in children who dissociate during prolonged neglect or traumatic experiences. Excitatory signals are manifest in hypervigilance, a higher than normal resting heart rate, impulsivity, and brain stem driven, fearful, reactionary behaviors in response to seemingly innocuous stimuli.

The brain is a rhythmic organ, and these rhythms are most evident in the patterns and rhythms the brain stem creates so we can breathe, sleep and know when to eat. A neglected child has dysregulated brain stem rhythms because the sensory experiences that are a normal part of a healthy attachment relationship – rocking, comforting, and predictable feeding – were absent when they needed them most. Thus, the vital patterns that regulate homeostasis and behavioral control do not function as they do in children who had a healthy attachment relationship. Similar is true for traumatized children; they may have received attention, time, and care, but because it was unpredictable and because caregivers were often a paradox of fear and comfort, the child's brain stem did not develop in a systemized, controlled manner. The child's brain stem-based dopaminergic, serotonergic, and noradrenergic neurotransmitter pathways become unable to send signals that make sense. Their actions and reactions are often not systemized and controlled, and their levels of arousal, impulsivity, and mood control are altered and affect even the "smarter" cortex; for example, these signals keep the cortex from being successful at inhibiting unfavorable actions.

When understanding the developing child, the level of brain stem regulation must be assessed. When diagnosing and caring for a young child with psychological difficulties, all physical insults to the brain stem, all traumatic experiences, and all cases of neglect in the child's history should be noted and used to shape the understanding of the child's current level of functioning. Unfortunately for psychological providers or caregivers, the brain stem is not as plastic as other parts of the brain. The brain stem cannot be changed by well-intentioned cognitive-behavioral interventions, which only use and alter the cortex, because these interventions do not stimulate the brain stem. However, patterned,

repetitive activities and predictable schedules that simulate the rhythmic activities of the brain stem can begin reorganization and can eventually cause behavioral control and predictable homeostatic function [8]. The brain stem may become more and more important to study as child development specialists and caregivers try to delineate appropriate and efficacious therapy for children.

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Brain Structure

►Neuroanatomy

Brainwave Test

►Electroencephalogram (EEG)

Brazelton NBAS

►Neonatal Behavioral Assessment Scale (NBAS)

Brazelton Scale

►Neonatal Behavioral Assessment Scale (NBAS)

Breastfeeding

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Synonyms

Feeding; Lactating; Nursing; Suckling

Definition

Breastfeeding is providing human breast milk to meet the nutrient needs of an infant.

Description

The Breast

Breastfeeding is the nourishment of an infant or young child directly from milk produced in a woman's breast. The breast contains mammary glands which consist of 15–25 separate branched segments. Surrounded by fat tissue, milk producing cells line the alveoli. Milk ducts lead from the alveoli to larger ducts which widen to the sinuses behind the opening of the nipple. The force of the baby's tongue and bottom lip against the sinuses combined with inner pressure ejects the milk allowing the baby to feed directly from the sinuses [4]. When the baby is breastfeeding, the "let-down reflex" is created where the hormones prolactin and oxytocin are released increasing milk flow towards the sinuses. The mere thought of ones child may initiate this reflex and create a milk-flow. In contrast, negative emotions such as worry and sadness can temporarily stall milk flow. The more the breast is stimulated, the more hormones are released, thereby producing more milk. Therefore, milk production adjusts to the baby's needs. Avoiding unnecessary restriction of the breast to the baby is vital in preventing premature reduction of milk flow [4].

Breast Milk

Breast milk production follows three distinct stages. The first milk is colostrum and is typically produced during pregnancy and lasts for 2–4 days following birth. It can

appear creamy or yellowish in color, and contains a high source of protein, fat-soluble vitamins, minerals and antibodies passed from the mother, providing passive immunity. Following colostrum, transitional milk is produced and lasts for about 2 weeks. Transition milk contains high levels of fat, lactose, water-soluble vitamins, and calories. Lastly, mature milk begins production and contains 90% water, necessary to provide infant with hydration. The remaining 10% is comprised of protein, fat, carbohydrates, and other nutrients necessary for infant's growth and development. Mature milk is divided into foremilk (found during the beginning of mature milk production) and hind-milk (containing higher levels of fat to ensure infant weight gain) [1].

While, the United Stages Surgeon General recommends that babies are fed only breast milk for the first 6 months of life, the American Academy of Pediatrics (AAP) recommends at least 1 year of breastfeeding and exclusive breastfeeding for the first 6 months of life. Mothers may choose to breastfeed their babies longer, but should introduce solid foods when the baby is 6 months of age. Standards of infant growth, health, and development are based upon breastfed infants. Therefore, breastfeeding is the model which all other feeding methods are compared [3, 6]. Most women are physically able to breastfeed but should refrain from doing so if they are HIV positive, as the virus can be transferred through breast milk. Mothers should not breastfeed if they are using illicit drugs as they can make a baby more irritable, disrupt sleeping patterns, and can even lead babies to develop physical addictions to these substances. Women with severe illnesses such as cancer, heart disease, hepatitis, active untreated tuberculosis, severe malnutrition, and active herpes lesions on the breast should also not breastfeed. Babies who are born with galactosemia, in which they cannot break down the galactose present in breast milk, should not be breastfed [2].

Relevance to Childhood Development

Breast milk provides optimal nutrition to a baby and is the preferred choice for feeding. Breastfed babies have been found more able to fight off infection and disease such as diarrhea, ear infections, gastroenteritis (stomach flu) and pneumonia. Breastfeeding has also been linked to protection from immune system related diseases such as lymphoma, Crohn disease, celias sprue, and juvenile rheumatoid arthritis [3]. Breastfeeding can even provide protection against allergies, asthma, and eczema [1]. In addition, studies suggest that infants who are breastfed have lower rates of sudden infant death syndrome (SIDS) in the first year of life [6]. Breastfeeding provides close skin-to-skin contact between mother and child and fosters an almost automatic emotional attachment [1]. In sum, the literature is clear that breastfeeding, regardless of the length of time is beneficial to both mother and child.

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Brigance

▶Brigance Diagnostic Inventory of Early Development

Brigance Diagnostic Inventory of Early Development

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Synonyms

Brigance

Definition

An inventory given to individual children to evaluate the development of children birth to age seven.

Description

The Brigance Diagnostic Inventory of Early Development is a readiness and screening inventory that is used

to determine the developmental level of a child ages birth through seven. The inventory consists of 200 items and usually takes between 30 and 60 min to administer depending on the number of the developmental domains evaluated. Children respond to questions by pointing to pictures, verbally responding or though written response. In addition, the examiner directly observes the child and an interview of the child's family is included to gain further information about the child. No specialized training is required for the examiner other than to have knowledge of child development and be familiar with the manual. Most items used in the inventory can be found in the typical settings of infants or young children. The 11 developmental domains covered in the inventory include: perambulatory motor, gross motor, fine motor, self-help, speech and language, general knowledge, readiness, basic reading, manuscript writing, and basic math skills.

Based upon the results of the inventory, objectives, activities and lessons can be planned to assist the child.

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Broadcast

►Media

Broca, Paul Pierre

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Life Dates

1824–1880

Introduction

Paul Pierre Broca was a French-born physician who is best remembered for his major contribution to the theory of localization in regards to the area of the brain responsible for language production which now bears his name. He also had an interest in human anatomy and is considered the founder of physical anthropology [7]. In addition, Broca's early published research centered on cancer pathology, infant mortality, and the treatment of brain aneurysms.

Educational Information

Broca enrolled in college in 1841 at the age of seventeen when he entered the University of Paris to study medicine. While at the University he became a House-Surgeon in 1844, assistant anatomical lecturer in 1846, and in 1848 a Professor of Surgical Anatomy at the University of Paris Medical School, the youngest ever to hold such a position. In 1853, Broca was named a Fellow of the Faculty of Medicine in Paris, and became a member of the Academy of Medicine and Professor of Surgical Pathology to the Faculty in 1867 [7].

In addition to his work in medicine, Broca made extensive contributions in the area of anthropology. He established the Anthropological Society of Paris in 1859 and served as the secretary until his death. He founded *La Revue d'Anthropologie* in 1872 where he published much of his writing. He had a keen interest in public health and wrote several articles on issues such as infant mortality, population development, and the state of medical services provided to the French Army [2].

Accomplishments

Broca's is best remembered for his seminal finding that speech production was localized in the area of the frontal lobe which now bears his name (Broca's area). This discovery was preceded by Broca's interest in problems associated with the brain-behavior relationship. One of his patients, M. Leborgne lost the ability to produce more than a single syllable of speech at the age of 21. The only sound that was produced by M. Leborgne was a syllable that sounded like "tan." M. Leborgne would often respond using this word and therefore became known as Tan. After Tan died (April 17, 1861), Broca conducted a post-mortem examination of Tan's brain, where he found a lesion in the left frontal lobe. From this and other observations, Broca concluded that the posterior part of the left frontal lobe was intricately involved in the production of articulate speech. Broca called the region the *circonvolution du langage* in his article presenting the

case of Tan [3]. With his publication of Tan's case in 1861, Broca presented anatomical evidence of the localization of a particular brain function. Broca was not the first to propose the idea of brain localization but he pushed the idea to the forefront of the scientific community [4]. Broca's area has been linked to involvement in language processing, speech production, auditory working memory, and comprehension [1].

Broca's localization of the speech production center of the brain was certainly one of the first findings to offer firm evidence of localization of functioning within the human brain [6]. Along with this discovery, Broca also did early research into the limbic system of the brain, an area we know today is involved in emotion and memory. Additionally, Broca tied the study of anthropology to his investigations of neurological functioning. He conducted research on the brain weight of almost 350 different patients at his hospital and discovered a difference in brain weight/mass between that of the elderly and young and between men and women [5].

Broca was honored by the French Government in 1880 when he was elected as a Member for Life of the French Senate representing Science. Broca died July 9, 1880 soon after receiving this award and was survived by two sons who went on to distinguish themselves within the medical community.

Contributions

While some of his conclusions about these findings have since been proven wrong, Broca's research on the brain, and in particular with the theory of localization, render him a pioneer in the fields of neurology, neuropsychology, and psychology.

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Broca's Aphasia

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Synonyms

Ataxic aphasia; Childhood aphasia; Expressive aphasia; Motor aphasia; Nonfluent aphasia

Definition

Broca's area is located in the frontal lobe of the left hemisphere of the brain and is responsible for motor speech planning. Named for Pierre Paul Broca, it was the first area of the brain to have a specified particular function.

The term *aphasia* describes a group of language disorders that are linked by a common characteristic of impairment of language processing and language production. This impairment is characterized by a combination of naming, fluency, and comprehension deficits. *Aphasia* is an acquired language disorder that results from damage to those areas of the brain responsible for the processing and production of language. For most people this occurs within the left hemisphere. *Aphasia* disorders most often occur suddenly as a result of a stroke or traumatic brain injury but can develop more slowly over time as a result of a tumor, or from infections.

Clinical Implications

Damage to Broca's area produces Broca's aphasia. The extent of the damage to Broca's area determines the extent of the aphasia. The results of this damage can be an inability to produce language of not more than a few words. In the most extreme cases the individual will not be able to express more than a single word. This inability to express words is not due to any known motor problems or impairments of the mouth or tongue. In Broca's aphasia the individual has difficulty expressing thoughts through speaking, however, the ability to understand speech remains largely intact [2].

Broca's aphasia is a non-fluent or expressive aphasia characterized by non-fluent speech, few words, short sentences, and frequent pauses. Speech lacks grammatical complexity and is described as telegraphic. For example, the individual would have extreme difficulty with adverbs, prepositions, pronouns, and conjunctions. The individual would *likely* be able to use nouns and verbs with language restricted to noun-verb combinations. The words that are produced come with great effort and often sound distorted. Speech is laborious and slow. The melodic

intonation of speech is flat and monopitched. Those affected are often frustrated due to the restricted ability to communicate their thoughts [8].

Individuals diagnosed with aphasia are generally referred to a speech pathologist or a neuropsychologist. Aphasia is commonly assessed through various standardized tests that require the individual to follow commands, answer questions, name objects, and converse. The primary treatment for aphasia is speech therapy that focuses on relearning and practicing language skills and using supplementary communication methods. The prognosis for recovery varies greatly and depends upon the severity of the brain damage and the location of the brain injury [7].

Classical Descriptions

Pierre Paul Broca, an anthropologist and surgeon from France, identified Broca's Area. He defined it as the center of articulate language in 1861. Broca had two clinical cases that defined his hypotheses about expressive language. The first case is that of Leborgne. In his role as a surgeon, he was called to treat Leborgne for advanced gangrene in his leg. During his examination of Leborgne, he discovered that the patient was unable to produce oral language due to a chronic brain lesion.

Leborgne had a history of seizure disorder since he was a child. At age 31, he lost his ability to produce oral language. Approximately 10 years later at age 41, right side paralysis developed. Pierre Paul Broca examined Leborgne and reported that he was unable to produce oral language. Leborgne often reported the word "tan" (as a result he later became known as "Tan"). Interestingly, in Broca's examination of Tan he concluded that his mouth, tongue, and larynx were intact. As a result of these findings, Broca concluded that impairment in the central nervous system was the cause of Tan's oral language difficulty. In contrast, Tan's ability to comprehend spoken language was intact. According to historical records he was able to correctly respond to questions with hand motions [4].

According to historical accounts, Tan died of gangrene. This gave Broca the opportunity to perform an autopsy on Tan. The autopsy results indicated that most of the left hemisphere of the brain was damaged. Specifically, a large lesion was found in the interior part of the hemisphere. This lesion was centered over the posterior part of the middle and inferior frontal gyri. Crank and Fox [3] notes that other parts of the brain that were involved in this extensive lesion included: (1) The anterior insula; (2) the inferior marginal gyrus; (3) the striate body. As a result of this examination, Broca hypothesized that the abnormal findings had begun in the third frontal gyrus and had progressed to surrounding tissues. Broca presented Leborgne's brain at a meeting to the French Societe d'Anthropologie.

The second case that further supported Broca's hypotheses is that of a man named Lelong. In Lelong's case, his expressive speech impairment was not confounded by other neurological symptoms. In fact, his lesion was much more localized than that of Leborgne. Specifically, the lesion was located in the third frontal convolution (posterior portion) [4].

One of the clinically significant issues in Broca's findings is that they provided evidence towards the hypothesis that mental functions were localized and lateralized in specific parts of the brain. Autopsy's conducted on twenty more cases after Leborgne further supported the original findings. Functional organization of the human brain became a main area of research after Broca's successful clinical case analyses [4, 7].

Characteristics of Broca's Aphasia outlined by the American Speech and Hearing [1] include:

- Speaks only in single words (e.g., names of objects)
- Speaks in short, fragmented phrases
- Omits smaller words like "the," "of," and "and" (so message sounds like a telegram)
- Puts words in wrong order
- Switches words and/or words (e.g., bed is called table or dishwasher a "wish dasher")
- Makes up words (e.g., jargon)
- Strings together nonsense words and real words fluently but makes no sense

Assessment and Intervention

Understanding Broca's aphasia is critical to developing an assessment plan and intervention strategies that are specifically designed for the individual student. An important issue is that the assessment be linked to intervention. Since language and communication are fundamental in a child/student's cognitive, emotional, and academic development, strategies for intervention must be integrated throughout the day for this and other types of aphasia.

An assessment for expressive aphasia should be initiated when the receptive aphasia is strongly suspected. Aphasia testing should be done for the following purposes:

(1) Diagnosis of a presence and type of aphasic syndrome, leading to inferences concerning cerebral localization; (2) measurement of the level of performance over a wide range, for both initial determination and detection of change over time; (3) comprehensive assessment of the assets and liabilities of the patient in all language areas as a guide to therapy [6, p. 1].

There are aspects of speech production that require special attention when conducting an evaluation. Goodglass [5] notes these aspects as the ease and quantity of production (fluency), articulatory error, speech rhythms and intonation (prosody), grammar and syntax, and the presence of misspoken words (paraphasias). It is important to note that while some of these aspects are always related to aphasia some may occur as speech difficulties not related to aphasia. Familiar and personally relevant stimuli will evoke the best responses.

Environment plays an important part in how much aphasia can affect the child/adolescent's daily activities. A supportive environment can help prevent further language impairment and other detriments to a person who has aphasia. Conversely, a non-supportive environment can increase the impact aphasia can have on daily routines. Teachers, clinicians, parents, and members of the child's IEP team need to take into consideration how the social environment and the process of communicating can impact the child/adolescent's daily life [6].

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Broca's Area

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Synonyms

Brodmann's areas 44 and 45; Left inferior frontal lobe (anatomically different areas, but regarded as Broca's area by different sources); Left inferior (third) frontal convolution (gyrus)

Definition

An area of the brain within the left inferior frontal lobe that was named after Paul Pierre Broca (1824–1880) [5], that is most commonly known to play a role in speech and language processing and production (e.g., speech articulation, lexical semantics, and syntax/syntactic decoding [3, 5, 9]); but has also been shown to be related to nonverbal frequency discrimination [10]; working memory [8]; complex hand movements, associative sensorimotor learning, and sensorimotor integration [1]; imitation [4]; musical processing [6]; and hallucinations in those with *Schizophrenia* [7].

Description

Broca's area was discovered by Paul Pierre Broca in the nineteenth century as a reaction to a call for evidence for localized/lateralized neurological functioning and contributed to the development of the field of neuropsychology [5]. Broca had received a patient, Monsieur Leborgne who had lost the vast majority of his speech production abilities except for his abilities to say the word "tan" and utter an oath [5]. Leborgne ("Tan") also showed paralysis on the right side of his body, but seemed to have largely retained his intellectual abilities. Upon Leborgne's autopsy, Broca discovered a frontal lesion that he assumed was related to his deficits. After collecting eight additional case studies, converging evidence implicated the posterior third of the third frontal gyrus as being related to speech production [5]. Broca therefore concluded that language is a localized function and thus different regions of the brain have specialized functions, which may be different depending on the cerebral hemisphere (lateralization). Because of his discovery, this pattern of impaired speech production is known as *Broca's aphasia* and part of the original site of atrophy is known as Broca's area.

Subsequent reexamination demonstrated more diffuse neurological damage in several of Broca's patients, which has led to debates about the extent of localization/lateralization, especially in light of cases in which *neuroplasticity* allows for retention of particular skills (notably language) after infarction, temporal lobectomy, *hemispherectomy*, or *full corpus callosotomy* (*commisurotomy*) [2]. In addition, these findings have led to debate about the neuroanatomical demarcations that define Broca's area. Some investigators have defined Broca's area as including the entire inferior frontal lobe, while others have more strictly defined Broca's area as including one of the

following: Brodmann's area 44 and the frontal operculum; Brodmann's areas 44 and 45; or Brodmann's areas 44, 45, and 47 [9]. In addition to discoveries informing the bounds of neurological specialization and Broca's area, more recent studies have also elucidated the many functions of Broca's area beyond traditional speech and language processing and production. For example, some of the novel findings included the use of functional magnetic resonance imaging (fMRI) to demonstrate that, during a task of discrimination of relatively slow (200 ms) tonal frequency glides, adults had greater activation of the left inferior frontal gyrus than those performing an auditory control task [10]. In addition, there has been evidence that anatomically, Broca's area overlaps partially with the ventral premotor cortex and that neuroimaging studies have demonstrated the activation of these regions during complex hand movements, audiomotor and visuomotor tasks, and when watching others perform these tasks (i.e., "mirror neurons") with largely homologous activation demonstrated across primate and human studies [1]. Further neuroimaging studies have found similar activations in Broca's area related to imitation tasks (e.g., finger tapping) [4]. As a final example, several other interesting studies have noted that bilateral activation in the inferior frontal neocortex, demonstrated via magnetoencephalography (MEG), is related to detection of music-syntactic incongruities [6] and that using single photon emission tomography (SPET), researchers have found preliminary evidence of increased regional cerebral blood flow in Broca's area during auditory hallucinations within a sample of individuals with *Schizophrenia* [7].

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Broca's Dysphasia

►Expressive Dysphasia

Brodmann's Areas 44 and 45

►Broca's Area

Bronchial Asthma

►Asthma

Bronfenbrenner, Urie

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Life Dates

1917–2005

Introduction

Urie Bronfenbrenner is a world-renowned developmental psychologist who developed the theory of ecological human development and co-founded the national Head Start program in the United States.

Educational Information

Dr. Bronfenbrenner was born in Moscow, Russia (former Soviet Union) and migrated to the Pittsburgh, United States with his parents when he was 6 years of old. After graduating from Haverstraw High School in New York, Dr. Bronfenbrenner completed his bachelor's degree in

psychology and music double major program at Cornell University in 1938. In his graduate study Dr. Bronfenbrenner received his master's degree in developmental psychology from Harvard University in 1940 and doctorate from University of Michigan in 1942.

Accomplishments

After his service in the US Army as a psychologist, Dr. Bronfenbrenner served as Assistant Chief Clinical Psychologist for Research in the Veterans Affairs Clinical Psychology Training Program in Washington, DC. Following an assistant professor of psychology position at University of Michigan for two years, Dr. Bronfenbrenner accepted a professor position at Cornell University Department of Human Development, Family Studies and Psychology in 1948 and stayed there for the remainder of his professional life.

Association for Psychological Science (former American Psychological Society) awarded Dr. Bronfenbrenner the James McKeen Catell Fellow Award in 1993. The same year Cornell's Life Course Institute was renamed as Bronfenbrenner Life Course Center. The center organized the First Bronfenbrenner Conference, Chaos and Children's Development: Levels of Analysis and Mechanisms, in 2007. American Psychological Association offered its first Lifetime Contribution to Developmental Psychology in the Service of Science and Society Award to Dr. Bronfenbrenner and renamed the award as Urie Bronfenbrenner Award in 1996. In addition to numerous national and international awards and honors, Dr. Bronfenbrenner received six honorary doctoral degrees from several institutions including major European universities.

Contributions

In over 300 hundred articles and 14 books that he published, Dr. Bronfenbrenner developed a comprehensive theory of human development and offered practical implications for public and policymakers. His seminal book *The Ecology of Human Development: Experiments by Nature and Design* that was published in 1979 laid out his ecological approach to human development, which included contextual elements from larger social environment that sociologists and anthropologists used to study. Dr. Bronfenbrenner's ecological view asserted that biological potentials can be fostered by reciprocal, long-term, and dynamic relations between developing human and objects and other individuals in different layers of surrounding environment. In the ecological theory, interpersonal relationships such as mother-child relation take place within the layers of social, cultural, economical, and political contexts that shape the development of an individual.

Dr. Bronfenbrenner was one of the founding fathers of Head Start program, which serves millions of low-income American children and their families since 1965. In line with Dr. Bronfenbrenner's ecological theory, Head Start helps not only children but also their parents and promotes parental involvement in child development. Dr. Bronfenbrenner was a frequent speaker at annual National Head Start Research Conferences showing extended support and advocacy for the program.

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Bronfenbrenner's Ecological Theory

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Definition

Urie Bronfenbrenner's ecological theory is a comprehensive system theory of human development that includes elements from social, cultural, economical, and political contexts in the development of an individual.

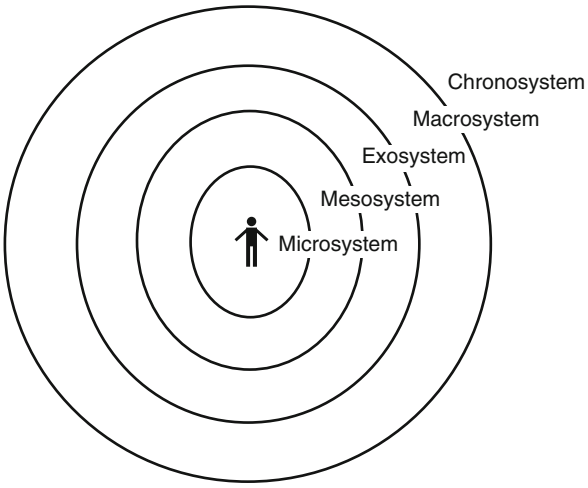
Description

In his seminal book *The Ecology of Human Development*, Urie Bronfenbrenner [3] introduced a new theory of human development that emphasizes interactive processes between the person and the environment. His ecological systems theory proposed that individual's development in any given area is primarily shaped by the interactions and relationships between the individual and different layers of surroundings. Activities, roles, and relationships of individuals in any setting constitute contexts of development. According to the ecological view, a thorough study of human development can best be achieved by the analysis of these different levels and contexts of person–environment interactions.

In ecological systems theory, nested layers of environment, like the Russian dolls, set the context for the developing human. Microsystem is the first layer of

environment in the immediate context of a child including settings like home, school, and playground. Experiences of children are affected by their activities, roles, and relationships that occur in the microsystem. For example, children's interactions with their siblings and peers, which may show contextual differences, comprise part of the microsystem. Beyond the microsystem, there are mesosystem, exosystem, macrosystems, and chronosystem with different elements of setting and appropriate analyses. The mesosystem involves interactions between microsystems or connections between different contexts such as school–home relations. The exosystem in ecological theory is the layer of social system which does not have a direct impact on the individual such as parents' workplace and community organizations. The macrosystem is the cultural environment that colors individuals' lives through beliefs, values, norms, traditions, and laws different cultures possess. The chronosystem is composed of patterns of events and transitions over time such as socio-historical circumstances on parenting styles (Fig. 1).

Bronfenbrenner later expanded his theory, which became bioecological theory, by focusing more on the active role of developing person's psychological characteristics. In essence, bioecological theory examines human development using a person-process-context-time model like other contextualist views of human development. As a dynamic systems approach to human development, ecological theory contributes a variety of principles and practices for the development of children.



Bronfenbrenner's Ecological Theory. Fig. 1 Ecological systems theory.

Relevance to Childhood Development

The most substantial application of ecological systems theory is the American national Head Start Program that Bronfenbrenner co-founded with psychologists Mamie Clark and Edward Zigler in 1965 [1]. Serving more than 900,000 preschool-age children with a budget over 6.8 billion dollars in 2007, the Head Start Program aims to help disadvantaged children to attain optimal levels of cognitive and social development through wide-ranging services in education, health, nutrition, and social services for children and families [4]. In accordance with his ecological approach, Bronfenbrenner [2] was influential in the inclusion of members and elements from different layers of the environment to achieve effective intervention practices for motivational and social aspects of compensatory education programs. Ecological systems theory emphasizes the comprehensive nurturing of a child's development with the contribution of different individuals such as peers and adults in various environments such as home, school, and neighborhood.

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Bronfenbrenner's Theory

►Bioecological Approach to Development

Brown ADD Rating Scales (BADDS)

►Brown Attention-Deficit Disorder Scales

Brown Attention-Deficit Disorder Scales

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Synonyms

BADDS; Brown ADD Rating Scales (BADDS); Brown attention-deficit-disorder scales for adolescents and adults; Brown attention-deficit disorder scales for children and adolescents

Definition

The *Brown attention-deficit disorder scales* (Brown ADD scales) are self-report rating scales that measure symptoms of attention-deficit hyperactivity disorder (ADHD). The scales are normed for four ages groups: primary/preschool (ages 3–7), school-age (8–12), adolescent (12–18), and adult (18 and older). Rating forms are available for parents, teachers, and self-report (8+ years of age).

Description

The Brown ADD scales were developed by Dr. Thomas E. Brown from Yale University School of Medicine and Director of the Yale Clinic for Attention and Related Disorders. The Brown ADD Scales and the scoring software are published by The Psychological Corporation. The scales were first published in 1996 (Brown attention-deficit disorder scales (BADDS) and originally contained scales for students ages 12–18 and a scale for adults 18 years of age or older. The test was expanded in 2001 with the addition of scales for children 3 years of age to 12 years of age. The Brown ADD scales currently offer four scales: primary/preschool (ages 3–7), school-age (8–12), adolescent (12–18), and adult (18 and older). Forms for children 3–12 years of age include teacher and parent forms, and a self-report measure is available for children 8–12 years of age. Forms for adolescents and adults are self-report measures only, with space on the forms for input from significant others. The scales include two manuals, the Brown ADD Scales for Children and Adolescents and the Brown ADD Scales for Adolescents and Adults.

According to the test manual, The Brown ADD scales are based on a view of ADHD as a deficit in executive functions and not strictly on the criteria presented in the *Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition* (DSM-IV-TR). The scales include measurements of six executive function clusters: (1) Organizing, prioritizing and activating to work (2) focusing, sustaining and shifting attention to tasks, (3) regulating alertness, sustaining effort and processing speed, (4) managing frustration and modulating emotions, (5) utilizing working memory and accessing recall. The primary/preschool and school-age forms include a sixth cluster: Monitoring and Self-Regulating Action. The scales consist of a series of behaviors which are rated by the respondent as occurring "never," "once a week or less," "twice a week" or "almost daily."

Professionals with graduate training in psychological assessment should be qualified to administer the Brown ADD Scales. Additional training in school or child clinical psychology will be helpful in interpreting the results. Protocols for the Testallow the examiner to record responses from the child and the parent(s) on the same protocol. This is consistent with administration procedures detailed in the manual, which indicate that when administering the scales to a child or adolescent, the examiner should administer the scales to the child or adolescent with the parent(s) present to offer differing perspectives, avoid exaggerated responses and to give each party present "a richer appreciation of other perspectives and experiences" [2]. The child is given the opportunity to respond to all items first. If the parent attempts to answer first or to cut-off the child, the examiner is instructed to interrupt the parent and reiterate to them that the child is to respond prior to the parent(s) response. Adults may prefer to have the scales administered to them individually; however, if he or she may invite a parent, close friend, or spouse to join them the administration of the scales in this scenario will be almost exactly as that for administering to a child. The scales contain a total of 40–50 items (less for younger children, more for older children) and the manual suggests administration will take 10–20 min for younger children and adolescents and 15–30 min for older adolescents and adults to complete. Total completion time is highly influenced by the number of items explored by the examiner and the verbosity of the client. The scales can be completed in written form by adults without the examiner present, but whenever possible should be followed up by face-to-face inquire during which the clinician asks for elaboration and examples of responses.

Clinicians may choose to use the Brown ADD scales in screenings and comprehensive evaluations for attention problems, as well as for monitoring of treatment responses in educational, clinical, and managed care settings [2].The Brown ADD Scales utilize T-scores to guide interpretation. Scores for children 3–12 years of age are divided into

four categories with four corresponding descriptions: average range, possibly significant concern;, somewhat atypical, probably significant concern; moderately atypical, significant problem; and markedly atypical, very significant problem. For adolescents 12–18 years of age, three categories are used: AD/HD possible but not likely, AD/HD probable but not certain, AD/HD highly probable. Adults are rated based upon normative results. The Brown ADD scales can be scored by hand, or by scoring software (Brown ADD Scales Scoring Assistant).

The manual reports the standardization sample used in the creation of the Brown ADD scales for children and adolescents was a stratified sample of 800 children 3–12 years of age. The sample was stratified by race and parental education, and children with a psychiatric disorder or learning disability were excluded. Participants were selected to replicate results of the 1999 U.S. Census, with 200 participants each from four geographic regions. The child clinical sample consisted of 208 children who were diagnosed with an attention deficit disorder based on multimodal assessment (DSM-IV criteria, clinical interviews with the child, his or her parents, reports from teachers, and standardized psychological assessments).

The standardization sample used in the creation of the Brown ADD scales for adolescents and adults as reported in the 1996 manual was comprised of a nonclinical sample of 190 adolescents and 143 adults and a clinical sample of 191 adolescents and 142 adults. This sample is based on U.S. Census proportions, but the sample has higher SES than the nation as a whole, and data for geographic regions are not included. The adolescent nonclinical sample had significantly more males than females (87% male), and this was also true for the clinical sample (79.5% male). The adult nonclinical sample was more balanced between males and females (49% male) and the adult clinical sample (50% male).

A review of the test manual will show that there is good evidence of adequate reliability and validity. The Brown ADD Scales were compared to other widely used measure of attention and yielded evidence of strong concurrent validity.

The Brown ADD Diagnostic Forms

The Brown ADD Scales include supplemental diagnostic forms for ages 3–12, 12–18, and 18 or older. The diagnostic form is comprised of a clinical interview, scoring summary of the scales, multirater evaluation, a screener for other learning and psychiatric disorders, an examiner's worksheet for comparing psychoeducational test scores, space for graphing test scores, and a summary of diagnostic data and impressions. Space is provided within the form for the examiner to record subject responses. The clinical interview for children and adolescents are designed to be administered to the child or adolescent, and the examiner is instructed to change the phrasing of the questions when administering to the parent(s). The multirater evaluation is designed specifically to evaluate for the presence of DSM-IV diagnostic criteria for AD/HD. The screener for other learning and psychiatric disorders will assist the examiner with determining if the individual being evaluated would also benefit from further evaluation for other comorbid psychological problems.

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Brown Attention-Deficit Disorder Scales for Children and Adolescents

►Brown Attention-Deficit Disorder Scales

Brown Attention-Deficit-Disorder Scales for Adolescents and Adults

►Brown Attention-Deficit Disorder Scales

Brown, Ronald T.

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Life Dates

1953–Present

Educational Information

Ronald T. Brown, Ph.D., ABPP is an internationally recognized pediatric psychologist who has clinical and research expertise in the behavioral sciences, pediatric psychology, attention deficit disorders, neuropsychology, psychopharmacology, and learning disabilities. Dr. Brown earned his B.A. in Psychology from Emory University. He received his Ph.D. in Psychology from Georgia State University. Dr. Brown completed his postdoctoral fellowship at the Institute for Child Behavior and Development, Pediatric Psychopharmacology and Learning Disabilities, at the University of Illinois at Urbana-Champaign. In addition, he has completed management programs in development and leadership education at Harvard University.

Accomplishments

Early in his career Dr. Brown studied impulsivity among adolescents with oppositional, conduct, and attentional disorders. Dr. Brown investigated how specific learning disabilities and ADHD affected information processing and cognition among young children. Next, Dr. Brown studied the effects of pharmacological treatment, most notably stimulant medication, on the behavior and cognition of children and adolescents.

Dr. Brown extended is systematic research program to focus on young people in whom chronic disease has contributed to attentional problems, whether through the direct result of their primary illnesses or as an iatrogenic effect associated with treatment. His research also has explored how children and families adapt and cope with serious illness and injury.

Contributions

Many of the conclusions from Dr. Brown's early research still hold relevance today. For example, his early findings suggested that some of the impulsivity of children and adolescents could be modified through modeling, but the effects did not generalize to other classroom-related tasks. Along with other leaders in the field, Dr. Brown's research led him to conclude that ADHD does not simply resolve through maturation; rather, children with the disorder continue to have many problems during adolescence and even into adulthood. Further, Dr. Brown and colleagues found that cognitive therapy was minimally effective for children with ADHD. Instead, they concluded that stimulant medication was the most effective as long as the children remained on the stimulant regimen. Dr. Brown also was one of the first pediatric psychologists to examine cultural influences on medication response.

In research looking at fetal exposure to alcohol, Dr. Brown's team found that much of the cohort demonstrated significant problems with attention and concentration, experiencing learning disabilities in mathematics and impairments in fine motor control. This research gave impetus to a systematic line of research examining the relationship between fetal alcohol effects and ADHD. By the early 1990s, Dr. Brown became interested in ADHD and gender differences. His research data indicated that females with ADHD received considerably less attention from classroom teachers and other significant adults than their male counterparts, despite exhibiting learning disabilities and attention problems. Dr. Brown's team also found that behavioral comorbidities were more frequent in males. These findings led to the conclusion that girls with ADHD were under-diagnosed because their behavior was not as disruptive and they did not typically bother teachers and other caregivers.

Dr. Brown and colleagues made major research contributions in examining potential learning and social late effects experienced by childhood cancer survivors in the 1980s. Their findings suggested that attention difficulties frequently occurred in children who had received central nervous system treatment. They further explored the impact of cancer treatment during critical periods in brain development. Additionally, Dr. Brown and his research team supported the hypothesis that overall most families were resilient and adjusted well to their child's cancer diagnosis and treatment.

Dr. Brown continued to blaze a trail in studying the impact of chronic illness on learning and adjustment and initiated a line of research examining the impact of silent infarcts associated with sickle cell disease on executive functioning and attention. Currently, Dr. Brown is the principal investigator in a large multi-site study exploring the use of stimulant medication in addressing attentional problems in children with sickle cell disease.

Current Involvement

Currently, Dr. Brown is the Dean of the College of Health Professions at Temple University. Dr. Brown has appointments as a Professor in Public Health, Psychology, Pediatrics, and Psychiatry and Behavioral Sciences. He is a fellow of the American Psychological Society, the American Psychological Association, the Society of Pediatric Psychology, the Society of Behavioral Medicine, and the National Academy of Neuropsychology, and is a diplomate in Clinical Health Psychology of the American Board of Professional Psychology. Dr. Brown is the editor or author of nine books, and has authored more than 200 publications throughout his career. He has received over $12,000,000 in federal and foundation awards. He was editor of the *Journal of Pediatric Psychology* from 2003 to 2007, and has served on numerous National Institute of Health study sections.

Bruner, Jerome Seymour

Brenda L. Verastigi, Bernadette Hassan Solórzano
Our Lady of the Lake University Community Counseling Service, San Antonio, TX, USA

Life Dates

1915–Present

Introduction

Dr. Jerome S. Bruner is an American psychologist who has contributed to the study of perception, cognition, and education. He was one of the first psychologists to challenge behaviorism and psychophysics and created a new theory of perception. He is also known in the United States and Britain for his role in education reform.

Educational Information

Bruner completed his Bachelor of Arts Degree at Duke University in 1937. He next attended Harvard University here he earned his Master of Arts in 1939. In 1941, after writing his thesis entitled "A Psychological Analysis of International Radio Broadcasts of Belligerent Nations," he completed his doctorate of philosophy. He worked as a social psychologist exploring propaganda, public opinion, and social attitudes for the US Army Intelligence during the World War II. He returned to Harvard in 1945 to teach and became a full professor in 1952. From 1972 to 1980, he had a position as Watts Professor of Experimental Psychology at Oxford University. He moved next to New York University Law School as the Meyer Visiting Professor in 1991 and since 1998 he has held the positions of University Professor and Research Professor of Psychology.

Accomplishments

Bruner has received many awards and honors such as the International Balzan Prize, the CIBA Gold Medal for Distinguished Research, and the Distinguished Scientific Award of the American Psychological Association. He served on the President's Science Advisory Committee during the Kennedy and Johnson presidencies. In 1960, he established the Center for Cognitive Studies at Harvard University and served as its director through 1972. He was elected to serve as President of the American Psychological Association from 1964 to 1965.

Contributions

Dr. Bruner was involved in founding Head Start. He believes that people interpret the world in terms of its similarities and differences. He suggests a system of coding in which people from a hierarchical arrangement of related categories. He researched the development of children and proposed three models of representation: enactive representation (action-based), iconic representation (image-based), and symbolic representation (language-based). His theory suggests that even very young learners can learn when information is presented in an organized fashion. The Center for Cognitive Studies was a platform for those interested in the cognitive process to come together and discuss how humans store information. Bruner was convinced that the mind structures its sense of reality using cultural products like language and other symbolic systems. This led to the publication of "Narrative Construction of Reality" in 1991.

Current Involvement

Dr. Bruner is currently a senior research fellow and university professor at the New York University School of Law. He teaches courses such as Colloquium on Culture and the Law, Lawyering Theory Colloquium: Crime and Punishment, and Psychology and the Design of Legal Institutions. He has researched the Use of Narrative and Story-Telling in Law. He has authored 14 books and more than seven publications in the area of education and psychology.

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Buddies

►Friends

Bulimia

►Binge/Purge Eating

Bulimia Nervosa

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Synonyms

Binge/purge eating; Eating disorders

Definition

An eating disorder where people control their body weight in spite of binge overeating by purging (self-induced vomiting) or use of laxatives, diet pills or other means.

Description

Bulimia nervosa the key characteristics of this disorder include bingeing (the intake of large quantities of food) and purging (elimination of the food through artificial means such as forced vomiting, excessive use of laxatives, periods of fasting, or excessive exercise). Recurrent episodes of binge eating. An episode of binge eating is characterized by both the following: (1) Eating, in a discrete period of time (e.g., within any 2-h period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances. (2) A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating). (3) Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise. (4) The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months. (5) Self-evaluation is unduly influenced by body shape and weight. (6) The disturbance does not occur exclusively during episodes of anorexia nervosa. Two types: purging types: during the current episode of bulimia nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas. Nonpurging type: during the current episode of bulimia nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

Bullies

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Synonyms

Intimidators; Proactive aggressors; Tormenters

Definition

A bully is an individual who inflicts aggression, harassment, or intimidation in verbal, physical, or psychological forms to another person(s). The underlying reason for this violent behavior is usually to obtain power over another individual [4].

Description

In today's society, bullying has been found to be one of the most frequent types of violence in American schools [11]. Research has found that boys are more likely to be bullies than girls and up to 54% of children across 25 countries are engaging in the act of bullying [3].

How Bullies Evolve

There are a variety of environmental factors that are associated with becoming a bully. Family factors are one main influence that can lead to the development of a bully. The literature shows that children who experience a lack of involvement, emotional support, and low cognitive stimulation from their parents have greater chances of exhibiting bullying behavior [2]. Furthermore, if a child

experiences harsh or over controlling discipline and/or abusive experiences, he or she may be at a higher risk of becoming a bully [3, 9]. Similarly, children who either observe siblings and/or parents engaging in the act of bullying or are being bullied themselves, may be more inclined to display bullying tendencies [4]. Another important factor that influences the development of a bully is the school environment of the child. The literature suggests that children who become bullies often experience a lack of connection to their school [14] or have been inadvertently reinforced for bullying behavior because of a lack of consequences from school personnel [4]. Children's peer group factors are another major influence contributing to the incidence of bullying behavior. More specifically, the peer pressure that children experience from others, or their need to fit in with others, has been found to directly contribute to bullying behavior [2]. As a result of these factors, children may bully others as a way of feeling important and in control, something that may have been absent from his or her upbringing [4].

Relevance to Childhood Development

The act of bullying affects the development of both the bully and the bullying victim in various ways academically, socially, and psychologically [11]. In the area of academics, the literature illustrates that bullies tend to skip classes, resulting in lower academic achievement [8]. In turn, this has been found to increase the likelihood of bullies dropping out of school and ultimately impacting their ability to obtain a job [3]. Victims may also experience academic difficulties due to the high incidence of school refusal that has been documented in the literature [3]. Moreover, research suggests that both bullies and victims have reduced concentration and problem solving skills as well as an increased amount of truancies from school [13].

Socially, research shows that bullies often display little empathy for others [5], which may affect their ability to maintain interpersonal relationships [13]. As a result, bullies may resort to aggressive behaviors towards others in order to achieve social status and approval from their peers [2]. Later in life, bullying tendencies may lead these children to become abusive parents or spouses, or display criminal acts [11]. For instance, bullies frequently target victims that complain, seem weak (emotionally and physically), and are attention seeking [4]. Although the harmed individual may be repeatedly victimized by the bully, he or she may continue pursuing interaction with the bully to obtain social approval [4].

In the psychological domain, bullies can exhibit high emotionality and low self control which may result in a higher prevalence of self-destructive behaviors, such as smoking and alcohol use [8]. These behaviors may later evolve into delinquencies in adolescence and potentially a diagnosis of conduct disorder [3]. Victims, on the other hand, tend to experience unhappiness and loneliness and display behavioral problems at school [7]. Additionally, bully victimization can lead to lower social adaptation and social phobias [8]. As a consequence of continued bullying, victims may resort to extreme measures of violence [13] and ultimately attempt suicide [1]. Interestingly, bullies and victims share several psychological consequences including sleep difficulties, lowered self-esteem, and symptoms of depression and anxiety [3].

What the School/Parents Can Do

As the literature has illustrated, the prevalence of bullies is continuing to dramatically rise and is creating challenges for various individuals across different settings (i.e., school and home). As a result, necessary strategies must be considered in order to address this rising occurrence and potential challenges that can arise.

Research has proven that the most effective way to address the dramatic increase in bullying is prevention [12]. There are several prevention strategies that parents and school personnel can utilize to remediate the harmful effects of bullying. It has been found that a key component of these strategies is the implementation of parent and teacher training [4]. This training should include identifying early warning signs of bullying behavior or victimization [12], creating social support from parents, peers, and teachers [10], enforcing serious consequences for bullying behavior, and providing adequate supervision involvement at home and school [12].

In addition to the above-mentioned strategies, there are several social skills interventions that the research has found effective. An initial step in determining the most appropriate intervention is a complete assessment using multiple methodologies in order to better understand and treat the bully [10]. The literature recommends using teacher report, self-report, and behavioral observation [6] during the assessment process. Some important components in the social skills interventions include discussing the negative impacts of bullying behavior, identifying alternatives to bullying behavior, using role plays as a means to teach empathy to the bullies, teaching bullies about the respect of others and the importance of tolerance, and providing the bully with positive reinforcement for engaging in appropriate behaviors [4]. With the use of these interventions and the previously mentioned prevention approaches, it is anticipated that the development of bullying behavior will be better understood and the prevalence of bullying will decrease.

Future Directions

Currently, few prevention and intervention strategies for bullies exist in the literature. In an effort to ensure that the bullying problem continues to decline, it is essential that a more comprehensive understanding of the prevention and intervention of bullies be explored in greater depth. Additionally, in order to create more effective prevention and intervention strategies, it is important to explore different areas of research, such as the feelings of bullies [9], the efforts of social payoff [10], and the power imbalance that occurs between the bully and the victim [1] to further understand the motives behind bullying behavior [11].

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Bullying

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Synonyms

Peer victimization; Peer rejection; Aggression

Definition

The abuse of power over others that is relative to cultural norms and mores; being repeatedly cruel to others who are weaker.

Description

Defining what constitutes "bullying" has been a controversial topic in research since the 1970s. Some basic definitions have focused on intention to hurt another but failed to separate bullying from aggression. Yet other definitions focused less on desire and more on actions, classifying bullying as negative behaviors not necessarily designed to hurt others. Other researchers have focused on the repeated act of bullying to further delineate bullying from one-time aggressive acts. Currently, bullying is considered an abuse of power that is defined by cultural expectations and situations. Whatever the researchers' definition, bullying is typically studied through self-reports, observations, parent/teacher reports, peer nominations, and interviews.

Bullying is not a phenomenon of only childhood; however, most research has focused on bullying in schools. In early childhood (infant-preschool years), observations during playtime reveal that children do bully for fun and not simply because they are unable to share appropriately with their peers. Although relatively few children are responsible for consistent bullying, the behaviors of targeting other children are not uncommon. A difference in power balance between peers is noticeable by teachers and parents such that researchers are able to reliably identify those children who are victimized by other children.

Peer victimization appears to decline with age such that between the ages of 8 and 11 years, percentage of students reporting being bullied weekly drop from 48 to 22.5%. The most common content of peer victimization attacks are being called hurtful names, being left out of things, and being hit or kicked. Victims vary based gender and age on their reactions to being bullied. More specifically, boys are increasingly more likely to report not being bothered by bullying between the ages of 8 and 11 years.

However, for girls there shows no developmental change in reaction to bullying. In general, victimized children are more likely to have low self-esteem and more likely to suffer from depression, sleep problems, headaches, bed-wetting, and loneliness than their non-victimized peers. In addition, boys and girls seem to be equally targeted by bullies; however, boys are more likely than girls to bully others.

Those children who perpetrate bullying show little change in their frequency of bullying others. Between 8 and 11 years, the tendency to bully others is fairly stable regardless of group size or gender. Children who bully others often blame the victim for provoking the bullying acts. The two most reported reasons for bullying others were "because they annoyed me" and "to get even" indicating that bullies often justify their actions by placing onus on the victims. Bullies are typically highly aggressive and act aggressively toward other children and adults. Bullies try to dominate others, have little capacity for empathy, and follow few rules.

Overall, programs designed to reduce bullying in school have been effective. Many methods are being used including peer counseling and training and conflict resolution skill training. The central theme, regardless of methodology, seems to be a school-wide antibullying policy and practice involving teachers, administrators, parents, and children. Incidents of bullying have been estimated from 1:5 children to 1:10 children being bullied by others.

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Buoyancy

►Protective Factors

Bupropion

Synonyms

Amfebutamone; Aplenzin; Wellbutrin; Zyban

Definition

An antidepressant medication used to treat major depression and seasonal affective disorder. It is also prescribed for smoking cessation.

Description

Bupropion, an antidepressant of the aminoketone class, is chemically unrelated to tricyclic, tetracyclic, selective serotonin reuptake inhibitor, or other known antidepressant agents. Since it does not inhibit serotonin reuptake, bupropion does not cause weight gain or sexual dysfunction like the SSRI group of antidepressants. Initially researched and marketed as an antidepressant, bupropion was subsequently found to be effective as a smoking cessation aid. In 2007 it was the fourth-most prescribed antidepressant in the United States retail market, with 20.184 million retail prescriptions.

Adverse events commonly encountered in patients treated with bupropion are agitation, dry mouth, insomnia, headache/migraine, nausea/vomiting, constipation and tremor. Bupropion lowers seizure threshold however, at the recommended dose the risk of seizures is comparable to that observed for other antidepressants. Bupropion is an effective antidepressant on its own but it is particularly popular as an add-on medication in the cases of incomplete response to the first-line selective serotonin reuptake inhibitor (SSRI) antidepressants.

C

7-Chloro-1,3-Dihydro-1-Methyl-5-Phenyl-2H-1,4-Benzodiazepin-2-One

►Diazepam

7-Chloro-2-Methylamino-5-Phenyl-3H-1,4-Benzodiazepine-4-Oxide

►Chlordiazepoxide

Cable

►Media

Cackle

►Laughter

Café au Lait Macules

►Café au Lait Spots

Café au Lait Spots

Synonyms

Birth mark; Nevus; Café au lait macules

Definition

Café au lait spots or *Café au lait* macules are pigmented birthmark. The name café au lait is a French term for "coffee with milk" and refers to their light-brown color often associated with these birthmarks. Sometimes Café au lait spots are called "giraffe spots."

Café au lait spots do not typically cause any ailment themselves. However, having multiple spots has been linked with a number of conditions such as neurofibromatosis and the rare McCune-Albright syndrome. Specifically, having six or more café au lait spots greater than 5 mm in diameter before puberty, or greater than 15 mm in diameter after puberty, are cardinal diagnostic features of neurofibromatosis type I. Other conditions these spots are associated with could include:

- Von Hippel – Lindau disease
- Fanconi anemia
- Tuberous sclerosis
- Silver-Russell dwarfism
- Ataxia telangiectasia
- Bloom syndrome
- Basal cell nevus syndrome
- Gaucher disease
- Chédiak-Higashi syndrome
- Hunter syndrome
- Marfan's syndrome
- Maffucci syndrome
- McCune-Albright syndrome
- Peutz-Jeghers syndrome
- Multiple endocrine neoplasia type 2

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Caffeine

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Synonyms

Guaranine; Mateine; Methyltheobromide; Theine

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

Definition

Caffeine is a commonly used stimulant, usually encountered in beverages and nonprescription medications.

Description

Caffeine occurs naturally in a variety of plants; these plants are then used as components of common beverages such as tea and coffee. Caffeine usually acts as a natural pesticide and toxin, hence its evolutionary value to plants in discouraging herbivores; in human beings, caffeine serves as a mild, fast-acting stimulant and diuretic drug. As such, its effects on the central nervous system (such as increased heart rate and alertness) mimic those of other, more potent, stimulants. Its molecular formula is $C_8H_{10}N_4O_2$. There is no known dietary need for caffeine among humans, yet it is popularly consumed within hot beverages and carbonated drinks daily by many. Caffeine is also used to increase the effects of analgesic drugs such as aspirin, and some nonprescription pain relievers include caffeine as an active ingredient. As caffeine reduces appetite, it can also be found in over-the-counter weight loss pills.

When taken in moderate amounts of 250–300 mg per day, caffeine temporarily increases alertness. This amount is roughly equivalent to two or three cups of coffee per day for an adult. In larger amounts, the risks of unpleasant and undesired physical reactions exist. As with other antagonist drugs, tolerance adaptation can develop, which both reduces the effectiveness of caffeine (requiring larger dosages) and leads to underproduction of internally produced neurotransmitters. This can lead to unpleasant withdrawal symptoms such as headache, nausea, and irritability. Addiction is possible. *The Diagnostic and Statistical Manual of Mental Disorders IV* (1994) includes caffeine intoxication, caffeine-induced sleep disorder, caffeine-induced anxiety disorder, and caffeine-related disorder not otherwise specified as recognized disorders.

Relevance to Childhood Development

Caffeine is a well-researched drug, with a large body of research on its effects being relevant to those interested in childhood development. Contemporary research suggests that low daily caffeine intake by pregnant women does not lead to a significantly increased risk of miscarriage or birth defects. The American Academy of Pediatrics recommends that nursing mothers refrain from anything other than low caffeine intake, as caffeine ingested by the mother can appear in breast milk. The result of ingesting larger amounts of caffeine during pregnancy and nursing are unclear.

While a recognized stimulant, caffeine is not part of psychopharmacological treatment for ADHD and related disorders. Its effects on children's behavior are inconclusive, although there is currently concern in the medical community over high caffeine intake among children and adolescents primarily through soft drinks and "energy drinks." As with all aspects of children's health, it is best for parents to consult with a pediatrician or other health professional regarding proper use of caffeine in their children.

Acknowledgement

This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

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Cain Complex

►Sibling Rivalry

Calculation

►Computational Skills

Callosal Agenesis

►Agenesis of the Corpus Callosum

Cant

►Dialect

Capacity of the Brain to Change

►Plasticity of the Brain

Carbolith

►Cibalith-S

Cardiac Disorders

Synonyms

Cardiovascular disease; Heart disease

Definition

Heart disease or cardiopathy is an umbrella term for a variety of different diseases affecting the heart. As of 2007, heart disease is the leading cause of death in the United States, England, Canada and Wales, killing one person every 34 seconds in the United States alone.

Cardiovascular disease is any of a number of specific diseases that affect the heart itself and/or the blood vessel system, especially the veins and arteries leading to and from the heart. Research on disease dimorphism suggests that women who suffer with cardiovascular disease usually suffer from forms that affect the blood vessels while men usually suffer from forms that affect the heart muscle itself. Known or associated causes of cardiovascular disease include diabetes mellitus, hypertension, hyperhomocysteinemia and hypercholesterolemia.

Children are usually thought of as having healthy hearts. Yet, eight out of every 1,000 babies born in the United States are born with a congenital heart abnormality. Nearly one million people living in the United States were born with a congenital heart defect.

Risk factors that contribute to coronary artery disease and other cardiovascular diseases (such as smoking, lack of exercise, and high cholesterol levels) often begin at an early age. Nearly half of children ages 12 to 21 do not exercise on a daily basis, and an estimated 8.8 million (about 30 percent) U.S. children ages six to 19 are obese. Some heart problems experienced by children, such as most cases of congenital (present at birth) heart defects, can be treated medically or surgically, but cannot be prevented.

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Cardiovascular Disease

►Cardiac Disorders

Card-Sorting Test

►Wisconsin Card Sorting Test

Caregiving Youth

►Young Caregivers

Carisoprodol (Soma)

►Depressants

CAS # 58-25-3

►Chlordiazepoxide

CASL

►Comprehensive Assessment of Spoken Language

CAT

►Computerized Axial Tomography

Catapres® (Clonidine)

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Synonyms

Clonidine (generic)

Definition

Catapres is a centrally acting alpha-agonist hypotensive agent. Clonidine is the generic form of Catapres. Catapres tablets are available in three dosage strengths: 0.1, 0.2, and 0.3 mg.

Description

Catapres is most commonly indicated in the treatment of high blood pressure. Other psychopharmacological indications of clonidine include the treatment of attention deficit hyperactivity disorder (ADHD), autism, Tourette syndrome, anxiety disorders, and chemical withdrawal.

Dizziness, lightheadedness, drowsiness, dry mouth, and constipation are common side effects that are usually mild, and diminish as the patient's body adjusts to the medication. Serious side effects are uncommon, but a healthcare provider should be notified immediately if irregular heartbeat, sudden or severe mood changes, or cold hands/ feet are experienced. Before taking Catapres, patients should discuss previous medical history (especially concerning kidney disease, heart disease, depression, and blood circulation disorders) with a physician, and note any known allergies. As little as 0.1 mg of Catapres has produced signs of toxicity in children.

This review of Catapres contains general information. For complete information about Catapres and individual use, a health care professional should be consulted.

Relevance to Childhood Development

Catapres has been used to treat ADHD, autism, and Tourette syndrome in pediatric patients, but its safety and effectiveness have not been well established in clinical trials. Catapres has been identified as a promising treatment for addressing the symptoms of Tourette syndrome.

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Catell-Horn-Carroll Theory of Intelligence

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Synonyms

CHC theory

Definition

A broad conception of intelligence that draws on Cattell and Horn's theory of fluid and crystallized intelligence and Carroll's three-stratum theory of cognitive abilities.

Description

The Catell-Horn-Carroll (CHC) theory of intelligence represents a combination of two previously proposed theories of cognitive abilities, the theory of fluid and crystallized intelligence (or Gf-Gc theory) associated with Catell and Horn, and John Carroll's three-stratum theory of cognitive abilities [2, 4]. Both Gf-Gc theory and Carroll's three-stratum theory are considered to be hierarchical theories of intelligence, in that they posit a broad cognitive ability with multiple, more specialized abilities at lower levels of the hierarchy. Because of the significant overlap in the main components of the two theories, an integrated theory has been proposed that combines elements of both theories to provide an understanding of the broad range of abilities that are typically thought of as representing intelligence [3]. CHC theory has been described as "the best validated model of human cognitive abilities [1, p. 140]," and it is generally viewed as a significant advance in the understanding of intelligence due to its basis in empirical research on cognitive abilities.

The earliest versions of Gf-Gc theory posited that there are two main types of intelligence, fluid intelligence and crystallized intelligence. Fluid intelligence refers to the efficiency of cognitive functioning (e.g., memory and reasoning abilities), while crystallized intelligence refers to the stored learning that a person acquires over a lifetime. For many individuals, fluid intelligence peaks in the early 20's and 30's and then gradually declines as a result of the natural aging process. In contrast, crystallized intelligence continues to increase throughout much of the life span. Later versions of the theory have retained the Gf-Gc conceptualization, while also adding a number of second-order factors similar to those identified in Carroll's three-stratum theory.

John Carroll's theory of cognitive abilities was developed after Carroll conducted a review and reanalysis of over 460 studies on human cognitive abilities [1]. Carroll [3] developed what he called the three-stratum theory of cognitive abilities, which asserts that cognitive abilities can be described by examining different levels of specificity. At the most basic level (Stratum I), Carroll asserts that there are sixty-five narrow cognitive abilities, such as general sequential reasoning, memory span, speech sound discrimination, and simple reaction time. These narrow stratum I abilities contribute to eight broad factors of cognitive abilities (Stratum II). These broad factors are fluid intelligence (G*f*), crystallized intelligence (G*c*), general memory and learning (G*y*), broad visual perception (G*v*), broad auditory perception (G*u*), broad retrieval ability (G*r*), broad cognitive speediness (G*s*), and decision/reaction time/speed (G*t*). Finally, each of these broad factors are conceptualized as contributing to an overall general intelligence (*g*).

The most direct application of CHC theory in the area of cognitive assessment is the Woodcock-Johnson III Test of Cognitive Abilities (WJ-III). The WJ-III was developed using CHC theory as a theoretical foundation [3]. The test measures abilities at each of the three stratums, including stratum I (narrow cognitive abilities), stratum II (broad cognitive abilities) [6], and stratum III (general intellectual ability). The WJ-III has been praised as a significant advance in the measurement of cognitive abilities because of its theoretical base [5]. Although the Wechsler and Stanford-Binet scales continue to dominate the intelligence testing field, the development of the WJ-III and other scales based on CHC theory has broadened the array of potential instruments for cognitive assessment. In addition, CHC theory has been somewhat influential as some of the more established instruments (WISC, SB) have been revised [5].

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Caudate Nucleus

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Definition

The Caudate Nucleus is a mass of gray matter within the Basal Ganglia, that together with the Lentiform Nuclei, form the Corpus Striatum [3] and as a whole with other structures of the Basal Ganglia plays a vital role in the control of movement as well as procedural memory [1].

Description

The Caudate Nucleus in combination with the Putamen, Globus Palidus and Amygdala represent a collection of nuclei lying mainly beneath the anterior regions of the neocortex known as the Basal Ganglia [2]. The Basal Ganglia are a collection of deep nuclei of the Telencephalon that transmit information to and from motor areas of the cortex via the Thalamus that provide for the control of higher-order movement, particularly in initiating movement [4]. Damage to the Basal Ganglia can produce changes in posture, increases or decreases in muscle tone, and abnormal movements such as twitches, jerks, and tremors [2]. The role these structures play in aspects of movement/ motor control can be best seen in those presentations that infiltrate those structures. For example,

Huntington's Disease regularly shows atrophy of the Caudate Nucleus [1] and the Caudate as well as other structures of the Basal Ganglia have been implicated in additional movement disorders such as Parkinsonism [3]. In relationship to manifestations of more of a childhood onset, the unwanted tics and vocalizations associated with Tourette's syndrome may also occur secondary to impairments of the Caudate Nucleus [2]. In addition to the control and regulation of movement, the Caudate Nucleus, together with other structures of the Basal Ganglia, and in combination with the Cerebellum, plays a role in procedural memory, which is memory for actions or performing tasks [1].

While the Caudate Nucleus is a mass of gray matter within the Basal Ganglia as a whole, in combination with the Lentiform Nuclei, it forms the Corpus Striatum [3]. The Striatum and specifically the Caudate Nucleus receives projections from all areas of the Neocortex and sends its own projections through the Putamen and Globus pallidus to the Thalamus and from there to the motor areas of the cortex [2]. The Caudate Nucleus also demonstrates reciprocal projections (afferent and efferent neurons) to a number of Limbic, Premotor, and Prefrontal areas [4].

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Celeration

►Standard Celeration Charting

Center for Epidemiologic Studies Depression Scale (CES-D)

►Beck Depression Inventory

Central Aphasia

►Childhood Aphasia

Central Auditory Processes

►Central Auditory Processing Disorder

Central Auditory Processing Disorder

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Synonyms

Auditory processing; Central auditory processes; Language disorders [3, 8]; Language impairments in children

Definition

Central auditory processing disorder (CAPD) is a deficiency in auditory mechanisms and processes, including sound localization and lateralization, auditory discrimination, auditory pattern recognition, temporal aspects of audition, auditory performance of competing acoustic signals, and auditory performance with degraded acoustic signals. It refers to weaknesses in the processing of auditory information in the central nervous system [3, 8, 9] that are not due to other cognitive or language-related disorders [2].

Description

CAPD was first conceptualized in the 1970s when studies of the central auditory nervous system were conducted on adults. Nearly 40 years later, diagnosis, assessment, and treatment of CAPD remains controversial. There is a lack of consensus among clinicians regarding identification, assessment, and treatment of CAPD [8, 9]. Theoretically, clinicians differ on whether a general auditory deficit or specific phonological deficit is the cause of auditory processing problems. Clinically, debates exist regarding identification and diagnostic criteria of CAPD. Ultimately, conflicting professional perspectives have limited the development of sophisticated diagnostic and intervention strategies [5].

Clinicians have established several behavior characteristics of CAPD, which include having normal tone-hearing thresholds, inappropriate responses to auditory stimuli, difficulty identifying the locations (localization) and positions (lateralization) of sounds, poor auditory discrimination, limited auditory and phonemic memory,

inconsistent understanding of speech in situations with elevated noise, poor listening, and required repetition of information [3, 8]. Perceptually, individuals with CAPD have trouble discriminating figure (i.e., the most relevant auditory input, such as a teacher's voice) from ground (i.e., background or ambient noise in the classroom).

Relevance to Childhood Development

Two to 3% of children, with a boy to girl ratio of 2 to 1, meet diagnostic criteria for CAPD [2]. In children, CAPD can significantly affect academic performance and result in reading, spelling, and handwriting problems. Children with CAPD can be characterized as having difficulty with: learning and language; sound discrimination; following directions; listening and attending in class; responding appropriately and consistently; and, filtering distractions. They may also frequently ask for information to be repeated [5, 9]. The effects of CAPD can intensify during particular developmental stages, such as in adolescence when teens are experiencing challenges of identity formation and social pressures [7].

Assessment

Assessment of CAPD in children should examine all auditory mechanisms and processes [1]. Children must be at least 7 or 8 years old to receive a formal audiological evaluation because of variability in brain functioning prior to this age. However, in children younger than age 8, aspects of hearing and auditory perception can be monitored [2].

Generally, teams of clinicians including audiologists, speech-language pathologists, psychologists, and teachers conduct CAPD assessments. Recommended assessments consist of a (n) collection of history and background information, observation of behaviors, administration of tests assessing general language performance, articulation, phonology, morphology, syntax, pragmatics, phonological awareness, and thorough review of sound mechanisms (i.e., temporal processes, pure tones, speech recognition, imitation, sound localization and lateralization, dichotic stimuli, binaural separation and integration procedures, and monaural speech). Audiological screening tests, such as the Screening Test for Auditory Processing Disorders in Children-Revised (SCAN-C) [10] and the Selective Auditory Attention Test (SAAT) [4], have been developed as early identification procedures for children who meet criteria for CAPD [3, 5, 9]. An audiologist must administer additional tests measuring physiological responses of the auditory system in a sound-treated room [2]. Once all assessment information has been gathered and reviewed, an audiologist – in conjunction with other appropriate professionals, can make a diagnosis of CAPD.

It is important to note, however, that results of formal testing may be lacking in ecological validity (i.e., real-life application). This is because formal testing results frequently do not consider the amount of effort a child has to exert in order to be successful. Thus, a child with central auditory processing problems may perform within the average range when he or she has the luxury of marshaling all resources, has a singular focus, and is tested in the "ideal" situation of a sound-treated room. This same child, however, may actually have significant functional weaknesses or actual deficits in auditory processing in the situations of day to day life that are less conducive to a singular focus.

Clinical Implications

Appropriate treatment can be implemented after an accurate and thorough diagnosis. Intervention techniques are highly individualized. Thus, the intensity, frequency, and type of therapy differ based on children's presenting strengths and weaknesses [2].

Because of the disagreement regarding the deficits involved in CAPD, it is premature to determine the targets and techniques of intervention [9]. However, clinicians concur that interventions should implement remediation and management techniques. Remediation involves shifting the function of the auditory central nervous system. Management encompasses behavior modification, cognitive training, and perceptual training to improve listening and learning skills in the environment [3, 5, 9]. In addition, compensatory strategies including language, problem solving, memory, and attention can lead to improvements in children with auditory deficits [2, 3, 5, 9].

Recent research has identified several specific evidenced-based remedial programs useful for children with CAPD, including Fast ForWord Language, computer-assisted language intervention (CALI), academic enrichment, and individual language intervention. Fast ForWord is a computer program which uses slow and exaggerated speech to improve children's auditory processing abilities. CALI is a computer-training program in which children receive direct assistance from a speech-language pathologist. Academic enrichment programs focus on learning, math, science, and geography. Individual language interventions involve working one-on-one with a speech-language pathologist. Upon intensive delivery of intervention (i.e., 500 min per week), all four techniques have been noted to lead to significant improvements in children's auditory processing skills [6].

Research efforts are considered necessary to examine auditory processing disorders further, solidify a definition of CAPD, establish diagnostic criteria, and assess the efficacy of intervention strategies. The approach to identification, assessment, and treatment of CAPD can be conceptualized once clinicians reach an agreement [5, 8].

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Central Auditory Processing Disorder

►Auditory Processing Disorder

Central Executive

►Executive Function

Central Hemispheres

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Definition

The central hemispheres are made up of the four lobes of the brain. These lobes include the frontal lobe, parietal lobe, occipital lobe, and temporal lobe.

Description

The central hemispheres or cerebral hemispheres of the brain consist of four lobes: frontal lobe, parietal lobe, occipital lobe, and the temporal lobe. The frontal lobe, located behind the forehead, is responsible for consciousness, attention, inhibition of impulses, information integration, and control of impulses. The frontal lobe is often considered to be the "home" of the personality. This is the section of the brain the enables humans to not only experience emotions but also interpret others' emotional reactions. Mood swings and changes are controlled in the frontal lobe. In addition, the frontal lobe is the section of the brain responsible for humor both expressing humor and understanding humor. Further the frontal lobe is responsible for sequencing events and actions. Due to its prominent position in the head, it is susceptible to injury.

The parietal lobe of the brain is divided into two parts and are located behind the frontal lobe and above the temporal lobe or at the back of the brain. It is

responsible for the reception and possessing of sensory information and some language function. Some of the sensory information processed by the parietal lobe includes temperature, touch, pressure, pain, taste, and visual reception. Visual reception includes the recognition of shapes and colors. If the parietal lobe is damaged the vision may be harmed.

The temporal lobe of the brain is found on either side of the brain, just above the ears. The temporal lobe controls emotions, memory, hearing, language, and learning. This lobe is accountable for interpreting and processing auditory stimuli. If the temporal lobe is damaged language may be affected. This would result in the individual being unable to verbally identify objects. In addition, visual perception, long term memory, and language comprehension would be impaired.

The occipital lobe, smallest of the four lobes, is located at the back of the brain. This lobe of the brain is primarily responsible for visual perception or sight. In fact, injury to the occipital lobe could result in blindness.

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Central Nervous System

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Synonyms

Central nervous system (CNS); Nervous system

Definition

The Central Nervous System refers to the brain and spinal cord and their connections with one another.

Description

The Central Nervous System is an essential network of the human body that is the primary source, in large part, of all action and cognition. There are two main divisions involved, the Spinal Cord and the brain, that play different roles in carrying out those functions of the Central Nervous System. The Spinal Cord has 30 segments divided amongst four divisions (Cervical, Thoracic, Lumbar, and Sacral divisions) and one additional Coccygeal segment that each have a spinal nerve on both the right and left that are essential in the transmission of impulses to and from the CNS from and to the Peripheral Nervous System (nerves outside of the CNS), musculature, and other body regions and structures [2]. Damage to the Spinal Cord can lead to complete or partial loss of sensation and/or movement in those systems and areas outside of the CNS. For example, complete damage of the Spinal Cord at the Cervical level (i.e., highest level) can lead to quadrapliegia (i.e., loss of all movement and sensation below the neck).

The other division of the CNS is the brain, which itself has three divisions (the Hindbrain, Midbrain and Forebrain) organized from the bottom up. First, the Hindbrain is the site at which the brain and Spinal Cord are linked. This Brain division itself has two subdivisions, the Metencephalon and Myelencephalon [4]. The Myelencephalon is a heavily myelinated region that transmits signals between the brain and the rest of the body, but also includes the Medulla Oblongata, which regulate basic internal functions such as one's breathing and heartbeat [4]. The Metecephalon contains the Pons and the Cerebellum. The Pons serves as a relay station in which it transmits sensory information from the Spinal Cord to the Cerebellum and other brain structures, mostly via the Thalamus [3]. In contrast, the Cerebellum has been linked to the coordination and initiation of movement, although it has been implicated in addition functions, including procedural memory and language processing [3].

The second division is the Midbrain, which itself has two subdivisions, the Tectum and Tegmentum. The Tectum primarily serves in the relaying and transmission of visual information, through the functioning of the Superior Colliculi, and auditory information, through the functioning of the Inferior Colliculi [3]. While the Tectum is associated with transmitting sensory information, the Tegmentum has been linked with motor output due to

it including the Substantia Nigra and Red Nucleus which are both essential motor nuclei [3]. For example, degeneration of the Substantia Nigra has been linked to Parkinson's Disease.

Finally, the Forebrain is the division that most people think of when picturing the human brain. Commonly referred to as the Cerebrum, it is those areas, systems, and structures most important in higher functions and is composed of the paired cerebral hemispheres and the Diencephalon [4]. The outer layer of the Cerebrum is referred to as the Cerebral ortex and is characterized by numerous folds called gyri and creases called sulci [5]. The hemispheres of the brain are divided into four primary lobes, the Frontal, Temporal, Parietal and Occipital lobes. However, in addition to these lobar divisions, the Limbic System and Basal Ganglia are often discussed independently and are included in as part of the Forebrain. Each of these divisions as well as the Diencephalon are involved in different processes.

First, the Diencephalon includes the Thalamus, Hypothalamus, and Epithalamus, which each play vital roles in different actions. The function of the Epithalamus not well known; however, one of its structures known as the pineal body, assists in the regulation of seasonal rhythms [5]. In contrast, the Hypothalamus takes part in nearly all aspects of motivated behavior, including feeding, sexual behavior, sleeping, temperature regulation, emotional behavior, endocrine function, and movement [5]. It also exerts influence on the Autonomic Nervous System, which includes both sympathetic and parasympathetic branches. Finally, the Thalamus is involved in a wide variety of functions, largely related to the role the different thalamic nuclei. For example, the Lateral Geniculate Nucleus of the Thalamus is the primary relay for visual information whereas the Medial Geniculate Nucleus relays auditory sensory information [3]. Altogether, the Thalamus may be perceived as the essential relay station of all sensory information, but it has also been linked to higher-order process such as memory,

The Basal Ganglia is a group of subcortical structures that includes the Caudate Nucleus, Putamen, and the Globus Pallidus. Together, the Basal Ganglia play a vital role in initiating and modulating movement while also maintaining muscle tone and playing a role in aspects of procedural memory [6]. The second division of the Cerebrum, the Limbic System, is really a network of structures that are key to the regulation and processing of emotions, while also playing key roles in memory [5]. Finally, the four lobes of the Cerebrum, may not only be differentiated from an anatomical locality standpoint, but also from a functional standpoint. First, the Occipital lobe, which is the most posterior lobe of the cortex, houses the visual cortex and is primarily involved in the processing of visual information. The Parietal lobe is entrusted with the processing of somatosensory information, integrating sensory information, and regulating spatial cognition [5]. Next, the Temporal lobe not only houses the primary auditory cortex but is also involved in language processing and memory [3]. Finally, the Frontal lobe is the site of origin of the primary motor cortex, which functionally plans and controls movement. In addition, the Frontal lobes are essential to the modulation and regulation of behavior and personality, while also housing the executive functions.

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Centration

Centration is a tendency to focus on one aspect of a situation and neglect others. This term was introduced by Swiss psychologist, John Piaget, to refer to the tendency of young children to focus their attention on only one salient aspect of an object, situation or problem at a time. This leads them to exclude other potentially relevant stimuli. In 1941, Piaget described an experiment in which he demonstrated the concept of centration as it relates to children's understanding of numbers. The child watched while a number of objects were set out in row and then moved closer together. The child was asked whether there are now more objects, fewer objects or the same number of objects. Most children in what Piaget referred to as the pre-operational stage of development, focused on the relative lengths of the rows without taking into account nothing had been added or taken away. This led them to conclude that there were fewer objects than before.

Cephalocaudal Principle

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Definition

The cephalocaudal principle refers to the general pattern of physical and motoric development followed from infancy into toddlerhood and even early childhood whereby development follows a head-to-toe progression.

Description

Cephalocaudal means head to toe. As such, the cephalocaudal principle refers to the general pattern of development seen in the earliest years of postnatal development specifically ranging from infancy into toddlerhood. The cephalocaudal principle applies to both physical and functional development. Regarding the prior (i.e., physical development), physical growth in size, weight, and feature differentiation follows this pattern of development [1]. The result of this is best seen in a comparison of the physical features of an infant compared to a toddler. In the case of the latter, the head is generally disproportionately large in comparison to the rest of the body. By the end of the preschool years most children have lost this top heavy appearance as their torso and limbs have lengthened and thus caught up with the initial surge of head growth [1].

Functionally, the cephalocaudal principle is also relevant. In terms of motor and sensory development this top down pattern plays out in the sequence of milestones accomplished. For example, control and stabilization of the head and neck tends to occur prior to an infant gaining better control of upper limb movement as well as torso control. The lower limbs are the last to come online. When played out over the first year life infants will be able to stabilize and control purposeful head movements prior to rolling over which will proceed sitting up which itself will occur prior to crawling, standing up, and finally walking.

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Ceramide Trihexosidase Deficiency

▶Fabry Syndrome

Cerebella Cortex

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Synonyms

Cerebellar cortex; Cerebellum

Definition

The Cerebella cortex is the outer layer of the Cerebellum, which is a structure of the Metecephalon, an aspect of the Hindbrain that is located above the brainstem, which plays a role in the coordination of movement and balance as well as procedural memory.

Description

The Cerebella cortex is the outer layer of the Cerebellum, which is a structure of the Metecephalon, an aspect of the Hindbrain which is located above the brainstem and has direct connections with both the Spinal Cord and Forebrain [1]. Functionally, the Cerebellum's main role is in the coordination of muscular activity, both in postural and locomotor mechanisms [1]. In fact, the Cerebellum has been reported to be "phylogenetically" old, possibly being the first brain structure to specialize in coordinating motor and sensory information [3]. The role the Cerebellum plays in functioning may be best exemplified through lesions analysis. Lesions of the Cerebellum, depending on location, may cause a variety of disorder, including deterioration of coordinated movement, irregular and jerky movements, intention tremor when attempting to complete a voluntary task, static tremor when resting, impairment of alternating movements, impairment in balance, disturbances of gait, and uncontrolled nystagmic movements of the eyes [3]. In addition to those aspects of motor coordination the Cerebellum may play a role in procedural memory and learning as well [2].

While the above constitutes the functional aspects of the Cerebellum, again the Cerebella cortex refers to the outer layer of the Cerebellum. Although the Cerebellum makes up only 10% of the brains total weight, the

Cerebella cortex contains nearly 50% of the neurons of the brain [3]. Topographically, the Cerebellum is notably symmetrical and demonstrates a clearly defined morphology [3]. On inspection of the cerebella cortex, one may drastically underestimate the surface area of the cerebellum. This is due to the cortex of the cerebellum being heavily infolded with numerous sulci giving the Cerebellum a layered appearance [3]. Similar to the Cerebral cortex, the Cerebella cortex is divided into two hemispheres. These cerebellar hemispheres are connected by the vermis. Furthermore, several fissures (i.e., deeper sulci) provide divisions in each hemisphere representing separate cerebellar lobes.

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Cerebellar Cortex

►Cerebella Cortex
►Cerebellum

Cerebellum

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Synonyms

Cerebella cortex; Cerebellar cortex

Definition

The Cerebellum is an essential structure of the Hindbrain that plays a vital role in the coordination of movement and balance in addition to being involved in procedural memory and learning [3].

Description

The Cerebellum is an essential structure of the Metecephalon, an aspect of the Hindbrain, which is located above the core of the brainstem. While the Cerebellum constitutes only 10% of the entire brains weight, it contains nearly 50% of the neurons of the brain [4]. Like the Cerebral cortex, the Cerebellum is divided into two hemispheres and can be further divided into regional domains. This is of interest as the different regions of the Cerebellum each specialize in a different aspect of motor control [2]. While the most medial parts control the face and the midline of the body, the more lateral parts are connected to areas of the motor cortex and are associated with movements of the limbs, hands, feet, and digits [2]. Finally, the flocculus receives projections from the Vestibular System and takes part in the control of balance and eye movements [2]. As a result, functional impairments of the Cerebellum largely depend on the location of the lesions.

Disorders of Cerebellar dysfunction includes deterioration of coordinated movement, irregular and jerky movements, intention tremor when attempting to complete a voluntary task, static tremor when resting, impairment of alternating movements, impairment in balance, disturbances of gait, and uncontrolled nystagmic movements of the eyes [4]. The impact the Cerebellum has on those noted functions is related to its link to other systems and structures. The Cerebellum exerts its influence on various aspects of motor control through its direct connections with both the Spinal Cord and the Forebrain as well as in combination with the gray matter nuclei in the hemispheres and the brain stem. Furthermore, there is growing evidence that the Cerebellum is involved in aspects of procedural memory [3]. That is, the Cerebellum seems to be the part of the motor system that participates in acquiring and maintaining motor skills, from riding a bike, to tracing a figure while looking into a mirror, to typing on a computer keyboard [2].

As noted, the Cerebellum's main role is to coordinate muscular activity for the purpose of movement and balance, both in postural and locomotor mechanisms [1]. The Cerebellum achieves this control by receiving somatosensory information from the Peripheral Nervous System, by way of the Spinal Cord, and Vestibular System, as well as from the visual and auditory systems [1]. In turn, it discharges out to the Cerebral cortex and back through the Spinal Cord, executing control over the timing of the execution of motor events, thus ensuring smooth, controlled, and well-organized movement [1, 2].

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Cerebellum

►Cerebella Cortex

Cerebral Blood Flow

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Synonyms

Regional cerebral blood flow (CBF, rCBF)

Definition

Blood flow patterns in the brain that serve as an indirect measure of neuronal activity in functional neuroimaging methods.

Description

In contrast to *structural imaging* techniques, which create high-definition images of the anatomical structures of the brain, *functional imaging* techniques (including technologies such as functional magnetic resonance imaging or fMRI; positron emission tomography or PET; and near-infrared spectroscopy or NIRS) permit examination of brain activity by tracking indicators such as *cerebral blood flow* (CBF), or blood flow patterns throughout the brain. Other related indicators examined by functional imaging techniques include measures of glucose metabolism or blood oxygenation. In general, when cognitively challenging tasks are presented to an individual, CBF increases to the region(s) of the brain most closely associated with performance of those tasks; for this reason, CBF-based functional neuroimaging techniques have been useful in lateralizing and/or localizing various cognitive functions, as well as in identifying disruptions to normal patterns of brain activity. However, simple, familiar, and/or previously mastered tasks require little cognitive effort to complete, and may therefore fail to produce measurable changes (or may produce decreases) from baseline measures of cognitive activity.

It should be noted that the types of functional neuroimaging techniques described above provide measures of changes in physiological indicators of brain functioning such as CBF, rather than direct measures of neuron-level activation. However, numerous studies have established that such sequelae of cognitive activity tend to be reliable indicators of cognitive functioning. Since these techniques measure *hemodynamic* responses, or blood flow changes resulting from neural activation, they tend to have poorer temporal resolution than measures such as EEG and MEG, which more directly measure neuron-level electrical activity; a lag of one or more seconds can occur between the occurrence of an event that is likely to elicit a hemodynamic response, and the detection of that event-related brain activity by functional imaging techniques. However, functional neuroimaging techniques generally offer higher levels of spatial resolution (<2 mm) than EEG and MEG, and therefore can provide more precise information on the location of activity within the brain.

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Cerebral Cortex

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Synonyms

Brain; Neo-cortex

Definition

The cerebral cortex consists of those systems and structures that represent one portion of the Telencephalon, which itself constitutes one portion of the Forebrain, that are responsible for the organization of all higher cognitive functions.

Description

The Cerebral cortex represents the highest division of the brain, which together with the Spinal Cord make up the

Central Nervous System. Part of that which is known as the Telencephalon, the Cerebral cortex is that which a majority of people likely think of when picturing the brain as it is this area that makes us uniquely human [4]. In sum, the Telencephalon is responsible for the organization of all higher cognitive functions. Further specification of those functions modulated by the Cerebral cortex is best outlined through discussion of the primary divisions of the Telencephalon which consists of the hemispheres, the four primary lobes, the Limbic System and the Basal Ganglia. The Cerebral cortex is characterized by numerous folds called gyri and creases called sulci [3]. Deeper sulci are commonly referred to as fissures. Most often the various fissures of the Cerebral cortex provide the boundaries for the different lobes of the Forebrain. There are four primary lobes in all, including the Frontal, Temporal, Parietal and Occipital lobes. In addition to these lobar divisions, the Limbic System and Basal Ganglia are often discussed independently and are included as part of the Telencephalon; however, they are largely subcortical (i.e., below the surface) and are thus not viewed as part of the cortex.

As noted above, the Cerebral cortex is characterized by the four primary lobes of the two cerebral hemispheres. These lobes are not only differentiated anatomically, but also functionally. First, the Occipital lobe, which is the most posterior lobe of the cortex, houses the visual cortex and is primarily involved in the processing of visual information. The Occipital lobe is bordered by the Parieto-Occipital sulcus, which separates it from the Temporal and Parietal lobes [2].

The Parietal lobe is the second lobe of the Cerebral cortex and is entrusted with the processing of somatosensory information, integrating sensory information, and regulating spatial cognition [3]. It is bordered by the Central Fissure, Lateral Fissure, and Parieto-Occipital sulcus. The Postcentral Gyrus lays just posterior of the Central Fissure and is the location of the primary somatosensory cortex [2]. In addition to the Postcentral Gyrus, the Angular Gyrus and Supramarginal Gyrus represent other key structures of the Parietal lobe which correspond with functions such as reading, writing, and calculations [1].

The Temporal lobe is the third lobe of the Cerebral cortex and not only houses the primary auditory cortex but is also involved in language processing and memory [2]. The Temporal lobe is bordered by the Lateral Fissure and by the Parieto-Occipital sulcus. The primary auditory cortex is localized to Heschl's Gyrus which lies just below and partially within the Lateral Fissure. In terms of the Temporal lobe's role in language processing, this is related to the presence of Wernicke's area, which is the receptive language center of the brain, which connects to Broca's area by way of the Arcuate Fasciculus. The Temporal lobe is involved in memory largely through its connections with structures of the limbic system which lies subcortical to the cortical surface of the temporal lobe.

Finally, the Frontal lobes, from a functional standpoint, represent the highest-order lobes of the cortex. Anatomically, the Frontal lobes are bordered by the Central Fissure and the Lateral Fissure [2]. Just anterior to the Central Fissure lies the Precentral Gyrus which is the site of origin of the primary motor cortex, which functionally plans and controls movement. In addition, the Frontal lobes are essential to the modulation and regulation of behavior and personality, while also housing the executive functions. This is linked to the workings of the Prefrontal cortices, which include Orbitofrontal, Dorsolateral, and Medial Ventral divisions. Finally, the Frontal lobes also house Broca's area, at the location of the Frontal Operculum, which is the expressive language center of the brain.

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Cerebral Dominance

►Hemispheres of the Brain, Lateralization of

Cerebral Function (Lateralization)

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Synonyms

Dominance

Definition

Laterality of cerebral functions is a recognition of different cognition and sensory motor functions for right and left hemispheres of the brain.

Description

Pierre Paul Broca's hypothesis that the left frontal lobe of the brain was responsible for speech production, caused a great leap forward in the idea of lateralization or hemispheric specialization, and prompted much study within the scientific community. Indeed, the idea of differentiating people into "left-brained," or "right-brained" is still a commonly held idea held by many. Yet, little conclusive evidence exists for the presence of individual brain functions that are totally localized in the left of right hemispheres.

Broca's research with a patient who had a stroke in the frontal area of the left hemisphere showed that the right hemisphere was not involved in the production of speech, which is an important finding because before Broca it was generally believed that the hemispheres of the brain were redundant in their responsibilities. After Broca many believed that the functions of the left hemisphere were in language production, which inadvertently introduced the idea of lateral dominance. Language itself is highly interdependent on temporal lobe functioning and Broca's findings dealt more with expressive speech.

It should be noted that while dominance does imply a great role of particular hemisphere on a given function, it does not necessarily mean that all aspects of a particular function are housed within one hemisphere of the brain. For example, although significant evidence suggests that speech and language have a left hemisphere dominance, research also has demonstrated that the right hemisphere is, in fact, able to perform some limited language functions such as processing of linguistic content (as long as it's simple), and in understanding [1].

Another area that is discussed at great length in the literature in regard to lateralization is handedness and laterality. Research has shown that the right hemisphere shows a greater involvement in the control of the left hand [1], where the left hemisphere is involved in the control and movement of the right hand. This finding led many, including Broca, to believe that handedness was the determining factor for brain and language dominance. However, this belief is problematic for several reasons including the continuous disagreement amongst researchers on what exactly identifies a person as right handed or left handed. Some believe that the hand a person chooses to write with is the identifying characteristic of handedness, while others prefer to look at individuals across a spectrum of activities to based handedness on. While the first definition requires a dichotomous view of handedness, the second approach places at handedness on a spectrum with each end being complete right or left handedness. Additionally, researchers have reported mixed results with regards to the belief that Broca held of language being related to handedness. For example, an MRI study [4] found that 94% of right-handed participants were left hemisphere dominant for language, with none of the participants showing right hemisphere dominance for language. Other studies looking at left handed people did not show as conclusive results as right-handed studies. For example, Szaflarski et al. [5] found that 78% of left-handed individuals as had left hemisphere lateralization for language and only 8% for right hemispheric dominance. Therefore, the empirical evidence suggests that generally the left hemisphere is lateralized for speech and language regardless of handedness.

Other Areas of Lateralization

Left Hemisphere Functions	Right Hemisphere Functions
Language – Grammar	Language – contextual
Language – Vocabulary	Language – intonation
Mathematics – direct fact retrieval	Mathematics – approximation
Mathematics – estimation	Intuition
Mathematics – numerical comparison	Imagination
Logic	Future thinking
Verbal abilities	Holistic concept formation
Analytical abilities	Intuition
Speech	Music
Movement of the right side of the body	Art
Sensation on the right side of the body	Drawing ability
Vision in the right half of the "visual field"	Movement of the left side of the body
	Sensation on the left side of the body
	Vision in the left half of the "visual field"

Relevance to Childhood Development

Research on adult's language and its subsequent lateralization appears to be consistent with research on children. Lateralization is a developing process in children. Healthy

children usually show atypical language distribution across the hemispheres, but that as they age, lateralization, including language and speech functions, becomes more pronounced [3].

Language is generally considered an important milestone in development of children. In many situations language delay is the first sign of neurological impairment or developmental delay. As such, the link between lateralization and speech is important to consider with regards to the development of children. Additionally, a number of neurological issues seen in children have been shown to directly impact language abilities and may be the only sign of neuropathology. Some of these childhood neurological problems shown to impact speech are epilepsy, stroke, tumor, or traumatic brain injury (TBI) [3].

These findings are important when considered with research suggesting that damage to the left hemisphere earlier in life may spur the brain into a reorganizing effort where language tasks may be established to the right hemisphere [4].

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Cerebral Giganticism

►Sotos Syndrome

Cerebral Hemispheres

►Central Hemispheres
►Hemispheres of the Brain

Cerebral Infarction

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Synonyms

Cerebrovascular accident (CVA); Stroke

Definition

Cerebral infarction refers to the sudden disruption of blood flow to areas of the brain that may lead to necrosis and/ neurological dysfunction.

Description

Cerebral infarction, more commonly referred to as stroke, refers to the sudden disruption of blood flow of one or more of the many vascular pathways of the brain. While the etiology of cerebral infarctions may vary, they are generally classified as either ischemic or hemorrhagic. In regards to the prior (i.e., ischemic), this is by far the most common form of cerebral infarction [4]. Ischemic infarctions are either secondary to an occlusion of an artery or capillary due to an embolism or thrombosis, or can also result from a sudden drop in blood pressure that prevents adequate blood flow from reaching a particular area/ region of the brain [1]. In contrast, a hemorrhagic infarction occurs when there is a bleeding out of an artery or capillary within the brain thus disrupting blood flow to areas beyond that point in the vascular pipeline. Hemorrhagic infarctions most commonly occur due to a weakening of the lining of a capillary or artery due to vascular malformations or aneurysms [4]. Trauma may also lead to hemorrhagic infarctions.

The functional impact of a cerebral infarction varies based on the location of the event, the type of infarction (i.e., ischemic or hemorrhagic), and the extent of time to which blood circulation is disrupted, which essentially corresponds with the degree of necrosis experienced. In fact, necrosis may occur within seconds to minutes of the infarction [3] which can cause permanent physical and neuropsychological deficits [2].

Although cerebral infarctions more commonly occur in the adult and geriatric populations, there are specific risk factors for children and adolescents. These include antiphospholipid syndrome, cardiac disease, drug abuse, homocystinuria, migraines, mitochondrial disorders, sickle cell disease and other blood dyscrasias, vasculitis and congenital vascular malformations.

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Cerebral Lateralization

►Hemispheres of the Brain, Lateralization of

Cerebral Palsy

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Synonyms

CP

Description

Cerebral palsy refers to a number of neurological disorders appearing in infancy or early childhood that are non-contagious. The neurological disorders associated with cerebral palsy permanently affect the child's body movement and muscle coordination, but do not worsen as the child ages. Cerebral palsy is caused by abnormalities in the brain centers controlling muscle movement. It can be the result of a birth injury, brain damage, bacterial meningitis, viral encephalitis, or a head injury; but typically children are born with this brain-based disorder. Symptoms of cerebral palsy are usually evident by the time a child is 3 years old.

Classifications of Cerebral Palsy by Muscle Movement

Cerebral palsy is divided into four major classifications. These classifications describe the parts of the brain that are damaged, as well as the different muscle impairment which results. The three major classifications are:

- Spastic – Spastic cerebral palsy is the most common type of cerebral palsy. With spasticity, individuals will usually have a reduced ability to stretch their muscles, a condition known as hypertonia. People with spasticity usually have damage to the brain's motor cortex.
- Ataxic – Ataxic cerebral palsy is the result of damage to the individual's cerebellum and impacts the muscles, resulting in tremors or low muscle tone, a condition known as hypotonia.
- Athetoid – An individual has athetoid cerebral palsy when there is mixed muscle tone, both hypertonia and hypotonia, resulting from brain damage to the corpus striatum.

Classification of Cerebral Palsy by Number of Limbs Involved

1. **Monoplegia** – only one limb is affected
2. **Hemiplegia –** one entire side of the body is affected
3. **Triplegia –** three limbs are impaired
4. **Dipelia –** all four limbs are involved, with the legs being more impacted by the cerebral palsy.
5. **Quadriplegia** – all four limbs are involved.

Treatments for Cerebral Palsy

Treatment of a patient with cerebral palsy is complicated, and must be tailored for the many nuances of the disease. The best treatment plan will consist of an integrated approach, supervised by a physician or team of physicians. Many large medical centers now have integrated spasticity clinics which can bring together numerous specialists simultaneously. This is more convenient for the patient, but it also facilities vital crosstalk between the specialists.

- Physical and Occupational Therapy: Various types of physical and occupational therapy can help a patient with cerebral palsy. These therapies are often supervised by a physician who specializes in physical medicine. Physical therapy usually focuses on gross motor skills such as walking while Occupational therapy focuses on finer motor skills as they apply to daily functions such as eating dressing, and school work.
- Medical Therapy: There are numerous medications and combinations of medications which a physician can prescribe for the symptoms of cerebral palsy. In addition to treating spasticity, with medications such as botox and baclifin, the doctor can also treat problems in other organs which were indirectly caused by the muscle spasticity. For example, a patient can experience acid reflux or breathing difficulties.
- Surgery: In some cases, the long term spasticity can cause malformation of bones and tendons, and these can be corrected with surgery. Neurosurgical procedures such as the pre-selective dorsal rhizotomy may also be used to directly treat the spasticity.

- Educational Services: persons with cerebral palsy benefit from increased educational services. A good school system will integrate various types of assistance through their special education departments. They can help the student deal with cognitive problems, may provide some therapy, and can also help with the simple logistics of getting to class and going to the nurse for medications.

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Cerebrospinal Fluid

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Synonyms

Cerebrospinal fluid (CSF)

Definition

Cerebrospinal fluid is a fluid that circulates through the ventricular system in the brain as well as surrounds the brain within the subarachnoid space offering additional protection from jarring.

Description

Cerebrospinal fluid is a salty fluid that primarily serves a protective function as it supports the brain by circulating through the ventricles of the brains and cushions the brain by enveloping the brain in fluid [1]. In addition to supporting the brain, CSF serves to help with excretion of waste products and maintaining the chemical environment for the CNS [1]. Due to its role in removal of waste products within the CNS, analysis of the CSF can demonstrate the presence of infectious processes [5]. In addition, analysis of the pressure exhibited by the CSF within the ventricular system may demonstrate the presence of Hydrocephalus, which is a condition caused by an increase in the volume of CSF within the system. Hydrocephalus may either result secondary to atrophy of the brain, thus enlarging the ventricles and, in turn, promoting increased CSF volume, or by there being an obstruction of the CSF flow leading to a build-up within the system [4]. In terms of its occurrence in children and/or infants, the latter is by far the most common etiology.

The CSF is initially produced continuously by the Choroid Plexus, which is a tissue of the ventricular system [5]. Choroid Plexus predominates in the walls of the four ventricles in the brain, thus CSF is continually produced within them all [2, 3]. The circulation of the CSF through the ventricular system follows a very specific path. The CSF initially flows from the two lateral ventricles though two interventricular foramina. The lateral ventricles are the largest ventricles in the brain and are depicted through imaging as large, hollow, C-like formations in each hemisphere [6]. From here the CSF enters the third ventricle and then passes through the Midbrain to the fourth ventricle by way of the cerebral aqueduct (Goldberg, 2007). While the lateral ventricle lies below the Cerebral cortex, the third and fourth ventricles extend into the brainstem [4]. Specifically, the third ventricle is located at the level of the Diencephalon, while the fourth ventricle lies in the brainstem, just beneath the Cerebellum [6]. The CSF then flows out of the fourth ventricle through the two lateral foramina of Luschka and the medial foramen of Magendie [4]. It is from here the CSF enters the subarachnoid space, which is the space that lies just beneath the arachnoid covering of the brain and Spinal Cord. It is the presence of CSF within the subarachnoid space that envelopes the brain and Spinal Cord that provides the protective buoyancy [2]. The CSF then eventually circulates to the vertex of the brain and is absorbed into the venous system through the arachnid villi [2].

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Cerebrospinal Fluid (CSF)

►Cerebrospinal Fluid

Cerebrovascular Accident (CVA)

►Cerebral Infarction

Cervix

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Synonyms

Neck of uterus

Definition

The cervix is the lower portion of the uterus that forms the neck that opens into the vagina. Cervix is the Latin word for *neck*.

Description

The cervix is the opening of the *uterus* into the *vagina* [3]. The anatomy of the cervix includes the *ectocervix*, or the part of the cervix that projects into the vagina. The narrow opening of the ectocervix is called the *external os*, oftentimes referred to as just the *os*. The part of the cervix that is connected to the uterine cavity is the *endocervical canal* and includes the *internal os*. The cervix expands, or dilates, during labor to allow for the birth of a baby [2].

Relevance to Childhood Development

At the beginning of the birth process, the cervix softens and the *mucous plug* at the external os of the cervix is expelled with a small amount of blood. In the first stage of labor, the cervix dilates to about 4 cm in diameter. As active labor progresses, the cervix dilates to 4–8 cm. The transition stage of labor is where the cervix is dilated to 8–10 cm. The baby can be born vaginally when the cervix is fully dilated at 10 cm and 100% *effaced*, or gone [3].

Complications can arise in the case of an *incompetent cervix*, or a cervix that starts to open before the baby is ready to be born [1]. Also called a *weakened cervix*, it may lead to miscarriage or premature delivery. An incompetent cervix is treated by a procedure that sews the cervix shut, called a *cerclage*. The cerclage is removed between 36–38 weeks of *gestation* before the woman goes into labor [1].

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CGAS

►Global Assessment of Functioning Scales

C-GAS

►Global Assessment of Functioning Scales

Change

►Accommodations, Piagetian

Changes to the Brain

►Plasticity of the Brain

Character Deciphering Abilities

►Phonemic Reading Skills

Characterized by Commitment to Something Without Personal Exploration

►Identity Foreclosure

CHC Theory

►Catell-Horn-Carroll Theory of Intelligence

Chemical Compound

►Acetylcholine

Chemical Dependency

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Synonyms

Addiction; Alcoholism; Drug addiction; Drug habit
Substance abuse; Substance dependence

Definition

►Addiction to a mood altering chemical including drugs, tobacco, and alcohol; A physical and psychological reliance to a mood- or mind-altering chemical accompanied by the inability to discontinue use despite adverse consequences caused by their use.

Description

Chemical dependency is characterized by a maladaptive pattern of substance use including alcohol and/or drugs (prescribed or illegal) as manifested by three or more of the following problems occurring at any time in the same 12-month period: (1) taking the substance in larger amounts over a longer period than intended; (2) a persistent desire or unsuccessful efforts to cut down or control substance use; (3) spending a great deal of time in activities necessary to obtain, use, or recover from the effects of substance use; (4) decline in involvement with important social, occupational, or recreational activities; and (5) continued use despite having a persistent or recurrent psychological or physical problem that is caused or exacerbated by substance use [1, 2]. Two additional symptoms of chemical dependence include tolerance and withdrawal symptoms. When an individual becomes tolerant to a drug, they require increasing quantities of the substance in order to receive the same effects that were achieved from the original dose. Withdrawal symptoms include physiological and psychological effects that occur when chemically dependent individuals discontinue use of the substance.

The etiology of substance-related disorders include multiple factors consisting of familial and genetic vulnerability [2], environmental stressors, individual personality characteristics [3, 8] (i.e., impulsivity, risk-taking), social pressures [3], and co-occurring psychological problems. Among adolescents, substance abuse and dependence are often comorbid with conduct disorder, attention deficit hyperactivity disorder, and major depressive disorder. Although symptoms may manifest differently between genders, it appears that both male and female adolescents with substance dependence are at equal risk for having these comorbid diagnoses [6].

Relevance to Childhood Development

Adolescent drug involvement is a major health concern. Many adolescents experiment with alcohol and drugs, however, the majority do not develop chemical dependence [4]. Thus, it is important to understand risk factors associated with the development of substance abuse and dependence. The likelihood that an adolescent will abuse substances is associated with the number of risk and protective factors present in their environment. Research indicates that early onset of substance use and heavy use during adolescence are two important risk factors for developing substance dependence [2]. Risk factors for substance abuse are present within the child's community, family, school, and social environments [3]. A list of the risk factors is provided in (Table 1).

The more risk factors within an individual's environment, the greater the risk of abusing substances and becoming chemically dependent. In contrast, the presence of protective factors buffers the negative consequences of exposure to risks for two reasons: (1) protective factors reduce the impact of the risk, and (2) they change the way a person responds to the risk [3]. Protective factors include individual characteristics (i.e., gender, a resilient temperament, a positive social orientation), strong social support system, and healthy beliefs and clear standards.

Further, drug use is typically progressive in nature. Adolescents begin using substances that are legal for adults, such as alcohol, followed by marijuana use, and then other illicit drugs (i.e., ecstasy, heroin, cocaine) which may lead to the development of a substance use disorder [2, 5].

Continued hazardous use of alcohol and other drugs can result in acute and chronic consequences. A few of the long-term effects include memory loss, cirrhosis of the liver, heart attacks, respiratory depression, malnourishment, depression, and damage to fetus. Substance dependence

Chemical Dependency. Table 1 Risk factors

Risk Factors for Adolescent Substance Abuse			
Community	**Family**	**School**	**Social**
Availability of drugs	Family history of substance abuse	Early and persistent antisocial behavior	Alienation and/or rebelliousness
Community laws and norms favorable toward drug use	Poor family management practices (i.e., lack of parental monitoring of child's behavior)	Academic failure beginning in elementary school	Friends who engage in substance abuse
Transitions and mobility (i.e., when children move from middle school to high school)	Family conflict	Lack of commitment to school	Favorable attitudes toward substance abuse
Low neighborhood attachment and disorganization	Parental attitudes and involvement in drug use		Delinquency or criminal behavior
Extreme economic deprivation			

in adolescents can also cause neurocognitive deficits including poorer language skills, IQ scores, language competence, academic achievement, and visuospatial performance and executive functioning [6].

In addition to long-term consequences, some of the more immediate effects that are experienced from risky use of alcohol and other drugs include disinhibition, impairment of judgment, slurred speech, sedation, impaired immediate recall, impairment of motor skills and death from overdose. These effects may lead to accidents, violence, criminal activity, and unwanted or risky sexual behavior. In addition, family, social, occupational, and financial problems often occur among chemically dependent individuals [7].

Many individuals with a substance use disorder do not seek treatment until they are well into the alcohol or drug using lifestyle, which may be six to ten years after the initiation of drug use [2]. Treatment of chemical dependency is notoriously difficult, checkered by high rates of drop-out and relapse among adolescents [8].

There are several forms of treatment for adolescents who have a substance use disorder. It is recommended that adolescents with a positive history of substance use, but currently use low amounts of a substance or are abstinent, would benefit from an early intervention strategy. Adolescents who are experiencing problems resulting from low to moderate use of substances should seek outpatient treatment, whereas individuals who regularly use substances and are experiencing moderate to severe problems due to usage would more likely benefit from a partial residential treatment facility (or "day treatment"). Adolescents experiencing severe problems from use and live in a home environment that propagates adverse influences should seek intensive inpatient treatment [8].

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Chemical Synapses

The word synapse is derived from synaptein, a term first used by Sir Charles Scott Cherrington from the Greek syn meaning together and haptein meaning to clasp. Chemical synapses are specialized junctions through which neurons signal each other as well as signaling non-neuronal cells

such as those in muscles or glands. Chemical synapses allow neurons to form circuits within the central nervous system. These are essential for all functioning, particularly those that involve perception and thought. This allows the nervous system to connect to and control other systems of the body.

At a chemical synapse one neuron releases a neurotransmitter into the synapse adjacent to another neuron. Neurotransmitters must be cleared out of the synapse efficiently so that the synapse can be ready to function again as soon as possible. The adult human brain is estimated to contain between 100-500 trillion synapses.

Chemical Transmitters

►Neurotransmitters

Chemometric Spectroscopy

►Near-Infrared Spectroscopy (NIRS)

Child Abuse

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Synonyms

Child maltreatment; Child victimization; Physical abuse; Shaken baby syndrome

Definition

While child abuse and neglect are defined by State and Federal laws, the Federal legislation entitled The Child Abuse Prevention and Treatment Act (CAPTA) sets the following minimum standard for what States must incorporate in their definition: "Any recent act or failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse, or exploitation, or an act or failure to act which presents an imminent risk of serious harm" [42 U.S.C.A. § 5106g(2) West Supp. 1998]. For the purposes of this legislation, it should be noted, the term "child" is defined as a person below the age of 18 or, in the case of sexual abuse, the age specified by the child protection law of the State in which the child resides. For individual State standards of what constitutes an abusive act refer to www.childwelfare.gov/systemwide/laws_policies/state/. Individual state definitions for child abuse and neglect determine the legal justification for State intervention in the protection of a child's safety and welfare and guide mandatory reporters in deciding whether to report an incident to child protective services.

Description

There are four subtypes of child abuse which include (1) physical abuse, (2) sexual abuse, (3) neglect, and (4) emotional abuse. States recognize the different subtypes of abuse in their definitions and some include and define parental substance abuse and/or abandonment as child abuse in their statues.

Physical Abuse: Physical abuse is often defined as "any nonaccidental physical injury to the child" and can include striking, kicking, burning, or biting the child, or any action that results in a physical impairment of the child. In addition, in many States and territories the definition also includes acts or circumstances that threaten the child with harm or create a substantial risk of harm to the child's health or welfare. An exception to reporting laws for physical abuse occurs in the context of physical discipline in 14 States, the District of Columbia, American Samoa, and the Northern Mariana Islands, where physical discipline of a child as long as it is reasonable and causes no bodily injury to the child is not considered abuse.

Sexual Abuse: CAPTA defines sexual abuse as "The employment, use, persuasion, inducement, enticement, or coercion of any child to engage in, or assist any other person to engage in, any sexually explicit conduct or simulation of such conduct for the purpose of producing a visual depiction of such conduct; or the rape, and in cases of caretaker or interfamilial relationships, statutory rape, molestation, prostitution, or other form of sexual exploitation of children, or incest with children." All the States include a definition of sexual abuse in their child protection laws and many include sexual exploitation in their definition. It should be noted that the individual States' child protection laws specify the maximum age (not always age 18) at which it is required to report an incident of child sexual abuse.

Neglect: Neglect is often defined as a deprivation of adequate food, clothing, shelter, medical care, or supervision. In addition, the clinical literature further defines the subtypes of physical neglect and psychological neglect. In many States and territories the definition includes a failure to educate the child as required by their respective laws. In addition several States define medical neglect as a failure to provide any special medical treatment or mental health care needed by the child or as the withholding of medical treatment or nutrition from disabled infants with life-threatening conditions. About 30 States provide an exception in their definition for parents who choose not to seek medical care for their children due to religious beliefs in civil child abuse reporting laws and three states specifically provide an exception for Christian Science treatment.

Emotional Abuse: Emotional abuse is often defined as "injury to the psychological capacity or emotional stability of the child as evidenced by an observable or substantial change in behavior, emotional response, or cognition," or as evidenced by "anxiety, depression, withdrawal, or aggressive behavior." In addition, clinical literature also highlights six categories of psychological or emotional abuse. They include, spurning, terrorizing, exploiting or corrupting, denying emotional responsiveness, isolating, and mental health, medical, and educational neglect. With the exception of Georgia and Washington, all states and territories include emotional abuse or "mental injury to a child" as part of their definition of abuse and neglect.

Parental Substance Abuse: In some States parental substance abuse is included in the definition of child abuse and neglect. This subtype often includes prenatal exposure of a child to harm due to the mother's use of an illegal drug or other substance; the manufacture of a controlled substance in the presence of a child or on the premises occupied by a child; allowing a child to be present where chemicals or equipment for the manufacture of controlled substances are used or stored; selling, distributing, or giving drugs or alcohol to a child; and use of a controlled substance by a caregiver that impairs the caregiver's ability to adequately care for the child.

Abandonment: Abandonment of a child is often defined as when the parent's identity or whereabouts are unknown; the child has been left by the parent in circumstances in which the child suffers serious harm; or the parent has failed to maintain contact with the child or to provide reasonable support for a specified period of time. Many States include a definition of abandonment in their definition of abuse or neglect, while other States include a definition in their reporting laws.

Relevance to Childhood Development

Before discussing the potential impact of child abuse and neglect on child development, it should be noted that no specific behavioral symptom exhibited by a child is diagnostic, in and of itself, that a child has experienced abuse or neglect. With that said the consequences of childhood abuse and neglect are both long and short term. Areas of functioning that may be affected, include: cognitive (e.g., lower IQ, delayed emotion modulation), emotional (e.g., post-traumatic stress disorder, mood disorders, deficits in empathy), self-image (e.g., distorted body image, worthless self-concept), behavioral (e.g., conduct disorders, substance abuse), interpersonal (e.g., deficits in effective social skills, disordered attachment), psychophysiological (e.g., failure to thrive, enuresis/encopresis, somatic manifestations), socialization (e.g., negative attributions or antisocial cognitive distortions, deficits in moral reasoning and in acquisition of pro-social attitudes). Overall, the presence of particular diagnoses and the severity and extent of psychiatric symptoms in those who have suffered childhood maltreatment may depend on individual child factors, such as the child's gender and ethnicity; abuse factors, such as age at victimization, duration of abuse suffered, severity of the abuse, the child's relationship to the perpetrator, and treatment received, if any; as well as community and neighborhood factors, e.g., involvement in antisocial or criminal sub-cultures. In 2004, from a nationally representative sample of children ages 2 to 14 in the child welfare system, almost 50% demonstrated clinically significant emotional or behavioral problems, while only about 25% received any mental health treatment. This study highlights the increased prevalence of mental health problems in those who have suffered child abuse and neglect and the insufficient services that these children receive.

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Child and Family Therapist

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Synonyms

Clinician; Counselors; Marriage and family therapist; Psychotherapist

Definition

A child and family therapist is a professional who conducts psychotherapy with both children and their families, and views children and families as a transactional social system with its own set of roles, rules, and rituals.

Description

Child and family therapists come from various professional fields including, but not limited to, the following: marriage and family therapy, counseling, social work, and clinical psychology. Although credentials vary from state-to-state, child and family therapists are specifically licensed within their professional field and have been trained in individual and family psychotherapy. Most child and family therapists have graduate-level training (e.g., a Masters or Doctoral degree) and typically have a minimum of two years clinical experience before they are fully licensed and work unsupervised.

Child and family therapists are invited to work with children and families for a number of reasons. A growing number of children and families are in need of emotional help. In 2003, approximately 2.7 million children had definite or severe difficulties in emotions, concentration, behavior, or proficient social skills as indicated by parents [1]. Additional data illustrate that stressors placed upon families in growing numbers–single person parenting, lower socio-economic status, and lack of health care are factors that contribute to a growing number of emotional needs in children and their families. Fortunately, it has been found that professional counseling helps; children who receive therapy do 79% better than children who do not receive treatment [2].

In a number of cases, a child demonstrates behaviors that a parent or caregiver finds distressing or feels is an indication of a larger problem and professional counseling is sought to target behaviors or to strengthen the family's interactions. In some instances, child and family therapists are called to work with families for preventative measures in order to help the family through a difficult set of circumstances such as illness, divorce, military deployment of one or more caregivers, or other significant transitions. Still in some cases, a child or family has already experienced difficult circumstances and a therapist may be invited to help the family members work through emotions and reactions to past events.

Some commonly encountered reasons children and their families seek treatment are:

- Dealing with a medical diagnoses
- Step or blended family issues
- Behavioral or academic struggles
- Sexual or physical abuse
- Divorce
- Medical situations
- Lack of social adaptability
- Death of a loved one
- Substance or alcohol abuse
- Depression
- Self-harming behaviors
- Eating disorders
- Nightmares
- Attachment issues
- Failure to meet developmental milestones
- Parents have need for improved parenting skills
- Incarceration of a family member
- Military deployment

The manner in which a child and family therapist works will be influenced by their theoretical orientation and training. There are numerous theories of psychotherapy, but the different approaches of child and family therapy can be grouped as Psychodynamic, Experiential, Behavioral/Cognitive, Strategic, Structural, Transgenerational, Postmodern, Psychoeducational, and Milan Systemic models [3]. While a child therapist views his or her primary client as the child, a child and family therapist considers the child and family as clients. The child and family therapist might choose to work with the child alone, but will invite the family to join in subsequent sessions, or the therapist may work with the child and family jointly throughout the therapeutic process. It is difficult to accurately address a family's concern without exploring and observing how a child functions and behaves within their interpersonal relationships. This can include any or all of the nuclear or extended family system, as well as the "larger" community system (e.g., peers, teachers, etc.). Therapy sessions focus on understanding family dynamics and emphasizing the unique strengths and resources of each family member. This approach regards the family as a whole and emphasizes such factors

as relationships and communication patterns rather than traits or symptoms in individual family members.

Child and family therapists may incorporate a variety of techniques and interventions, such as play therapy, filial therapy, art therapy, or behavioral/cognitive interventions. The techniques and interventions implemented will be largely influenced by the therapist's theoretical orientation to psychotherapy [4].

A child and family therapist can work in many different locations, including, but not limited to, schools, private practices, clinics and hospitals. Each of these settings might have a different set up for the therapy room. Some therapy may take place in a play therapy room, a room designed for play. Other therapists might chose to use a more traditional office setting, or a traditional setting with some modifications to make children more comfortable. In schools and other educational settings, the therapy may occur in a classroom. In some cases a therapist might even hold a session outside or in another location than an office.

Relevance to Childhood Development

Engaging in a therapeutic process that combines both children and their families increases opportunities to facilitate the discovery of new solutions and strengthen relational bonds within the family. This can empower and validate a child and family's experience as equal participants in psychotherapy.

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Child Clinical Psychology

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Synonyms

Clinical child psychology

Definition

Child Clinical Psychology is a specialty of professional psychology that integrates the basic tenets of clinical psychology with a thorough background in child, adolescent and family development and developmental psychopathology.

Description

Overview

Child clinical psychology was recognized as a specialty of professional psychology by the Commission for the Recognition of Specialties and Proficiencies in Professional Psychology (CRSPPP) in 1998. Child clinical psychology integrates the basic tenets of clinical psychology with a thorough background in child, adolescent and family development and developmental psychopathology. Child clinical psychology is focused on understanding, preventing, diagnosing, and treating psychological, emotional, developmental, behavioral, and family problems of children. Child clinical psychology has a strong research emphasis and is committed to furthering the development of evidence-based assessments and treatments.

Populations Served

Child clinical psychologists provide services for infants, children, adolescents, and their families who have a broad range of difficulties, including psychological, behavioral, developmental, academic, health-related, and family problems. Problems can include: "high risk children compromised by biological vulnerabilities and/or psychosocial adversity and their families; children and adolescents with emotional and developmental problems, including psychotic disorders; children and adolescents with significant mental disorders as reflected in behavioral, emotional, cognitive, and/or developmental problems in family, school, childcare, juvenile justice system, and/or peer group contexts; adolescents with problems including delinquency, substance abuse/dependency, and high risk sexual behaviors; children and adolescents with signs of cognitive deficits or uneven development requiring an assessment of cognitive functioning and/or school readiness; children, adolescents, and their families coping with injury, trauma, and loss as a result of natural disasters and human-made disasters; children, adolescents, and their families in the pediatric system coping with a variety of health-related problems, including: chronic, serious, and/or life-threatening physical illnesses, adherence to medical regimens, pediatric patients with chronic pain, and amelioration of symptoms of various pediatric

conditions; children and adolescents with physical illnesses whose symptoms may be exacerbated by psychosocial factors; children and adolescents with parents who have chronic physical or mental health conditions; and children/adolescents, and families coping with developmental milestones or with the upset of divorce, single-parenting, and custody arrangements, or adjusting to remarriage and step-parenting" [1]. Services can be provided in a variety of settings, including medical clinics, schools, private practices, hospitals, and community agencies [2].

Types of Services

There are four main areas in which child clinical psychologists provide services; assessment, intervention, prevention, and consultation. Assessment techniques include using open-ended, semi-structured, and structured interviews with children and their parents/caregivers; intelligence, achievement, and cognitive testing with children; behavioral observations; and use of behavior rating scales and projective/objective personality assessment measures. Intervention encompasses a wide range of treatments for children and their families, and can include individual psychotherapy, group psychotherapy, family psychotherapy, parent training, school interventions, and psychoeducation. Child clinical psychologists that are involved in prevention aim to prevent the onset of problems and disorders in infants, children, adolescents, and families. Prevention programs can include programs to target and prevent bullying, teenage pregnancy, and substance abuse. Finally, child clinical psychologists consult with other professionals from multiple disciplines, such as child psychiatrists, neurologists, teachers, pediatricians, social workers, and other professionals who are involved with the care and treatment of children [1].

In addition to providing services in these different areas, child clinical psychologists are also active in teaching and research. Research topics are very broad and include research related to the development and validation of assessment measures, research related to the development and documentation of the efficacy and effectiveness of child treatments, research of the etiology, correlates, and developmental course of child psychopathology, and research on risk factors for child psychopathology. Child clinical psychologists that are often employed in academic settings may teach basic psychology courses and graduate-level specialty psychology courses. Additionally, they may also supervise undergraduate and graduate students in their research and clinical activities [2].

Training/Education Requirements

Training in child clinical psychology is usually pursued within an APA-approved PhD or PsyD program, and includes a year-long full-time clinical internship. Students in child clinical psychology are provided with a background in core areas of psychology, and then learn specialty-specific training [3]. Additionally, postdoctoral training with a child/adolescent focus may be received after general training in a clinical psychology doctoral program. Preparation of child clinical psychologists is characterized by: "knowledge of normal developmental processes as a prerequisite for distinguishing between normal and abnormal behavior and development, and for understanding developmental factors as they relate to assessment and intervention; normal family processes as they relate to children's development, including the impact of family dynamics, normal family functioning, and child rearing practices on normal child development and on the development of children's problems; child and adolescent psychopathology including epidemiology of children's problems, assessment and classification of problems across the age span, etiological models of child and adolescent psychopathology, research findings related to etiology, treatment options and treatment efficacy related to specific problems at different ages and knowledge of family and other problems requiring treatment; knowledge of the methods of assessment of development, intellect, cognition, personality, mood and affect, and achievement; theories and research evidence for treatments of childhood mental disorders, adjustment reactions of childhood, family problems, and adaptation to stressful conditions or to chronic illness; special ethical and legal issues in research and practice with children; appropriate appreciation for and understanding of principles of diversity and cultural contest as they relate to professional behavior and clinical practice" [1].

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Child Counseling

►Child Psychotherapy

Child Counselors

Synonyms

Child therapists; Mental health counselors; Professional counselors

Definition

Licensed professionals trained at the master's or doctoral level to help children and their families cope with personal, social, career, and educational issues.

Description

Child counselors are a subspecialty of a group of professionals who focus on working with individuals, families, and groups experiencing developmental or situational adjustment issues. Child counselors have additional training and practice to better understanding and be competent in techniques for working with the unique developmental needs of children (ages 0–18) and their families. Their work is centered on both prevention and treatment of situational and long-standing problems. Counselors are rooted in development and wellness, helping children and their families to reach their highest potential and well-being.

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Child Development

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Synonyms

Child psychology; Developmental psychology; Human development

Definition

Child development refers to the growth and development, that is, to the physical, cognitive, emotional and social changes an individual experiences from infancy through to adolescence.

Description

Principles of Development

Child development focuses on the changes that occur during childhood; some consider this to include the prenatal period because of the implications of this time on later development, and adolescence [7]. Growth is both continuous, reflecting more stable characteristics such as temperament and discontinuous, reflecting discrete changes such as the acquisition of speech. Growth may occur predictably or unevenly, and influences and is influenced by the surrounding contexts [6]. One long-standing debate is the relative contributions of heredity (nature) and environment (nurture) to the process [3, 6]. While early theorists emphasized the role of heredity, early work in the field was largely in the area of physical development where even today there is general agreement that inheritance plays a predominant role [3]. While inheritance may set the stage for the acquisition of cognitive and social behaviors there is also general agreement that experience plays an increasingly important role as children develop into social beings [2, 6]. Today most researchers agree that both heredity and environment interact; debate continues as to which is more critical in specific circumstances. And, while most researchers are from the field of psychology, child development is a truly multidisciplinary area of study [7].

Physical Development

Particularly noticeable during infancy are the tremendous physical changes an infant undergoes [2, 6]. Within a 1 year period, the infant grows from an immobile creature to a walking, talking individual. The typical baby triples in birth weight by the age of 1 and by age 2 is half as tall as she will be as an adult. This physical growth is thought to be continuous in nature involving gradual progress. Rates of physical growth slow during childhood and then increase again during adolescence, culminating with puberty or the achievement of sexual maturity.

While babies enter the world with all sensory systems such as hearing and taste intact, for the first few months after birth infants display primarily reflexive behaviors. For example, infants have a sucking reflex which is instrumental in aiding them to meet their nutritional needs.

The acquisition of voluntary motor skills is referred to as the accomplishment of ▶motor milestones [2, 6]. Locomotor skills such as sitting and standing generally occur at 6 and 11 months of age, respectively. Visual-motor

coordination is achieved through the acquisition of manipulatory skills such as reaching and grasping at 3 and 5 months, respectively. Knowledge of motor milestones is useful in determining developmental delays although there is typically a wide range of variation within the normal range of any milestone [7]. Children continue to achieve motor milestones throughout childhood. Increasingly complex motor and hand-eye coordination skills are achieved e.g., throwing and catching a ball, riding a bike, manipulating a pencil or keyboarding.

All growth and development depends on growth of the brain which at birth is 25% of its adult weight and which by age 2 years is 75% of its eventual weight [6]. The human brain is known to be quite plastic meaning that it is highly responsive to what it experiences.

Early growth is considered to be primarily maturational in nature [2, 3, 6]. ►Maturation refers to the predetermined biological unfolding of an individual due to the inherited instructions provided by the parents at conception. It is precisely because of maturational influences on development that children all over the world acquire physical skills at roughly the same age and in roughly the same order. For example, babies begin to walk at around 1 year, though some may walk much earlier and some later. Walking may be preceded by crawling but walking never precedes crawling. In this way growth is guided by an inborn or innate biological blueprint via our DNA although it can be influenced by the environment as through diet or disease.

While many early physical accomplishments are due to maturation, once the basics have been acquired new skills are largely achieved due to ►learning [2, 3, 6]. Now experience or environmental influences have a larger say in which skills are displayed. So while children worldwide all develop into walkers, swimming for example is a learned skill. Similarly while all children begin to speak despite growing up in widely different environments, only those exposed to written material, generally taught in school, learn to read. Learning then reflects relatively permanent changes in behavior due to experience. Even the acquisition of motor milestones can be impacted by the environment although this primarily affects the rate at which the abilities emerge rather than the order. The dynamic systems theory of motor development explains that motor development is an action system whereby opportunities for exploration and practice influence the development of existing motor capabilities which in turn impacts further exploration.

Cognitive Development

Jean Piaget (1896–1980) proposed one of the most influential theories in the field of child development, his theory of cognitive development [1, 5]. Cognitive development refers to the acquisition of thinking, reasoning, problem solving and other processes involved in intelligent behavior. Piaget was among the first to propose a reconciliation of the heredity and environment viewpoints; he argued that children actively create knowledge as they interact with their world, or a constructivist theory.

Knowledge construction takes place primarily through the processes of assimilation and accommodation [1, 3, 5]. In assimilation the child is able to fit new information in terms of existing parameters whereas in accommodation a new parameter needs to emerge to handle the new information [1, 5].

According to Piaget, cognitive development occurs in a sequence of four stages resulting in qualitative and not just quantitative differences between children of different ages. The first stage, the *sensorimotor* stage describes development in the first two years of life. Here the infant knows the world through her sensory and motor interactions with objects in the world. The chief advancement of this period is the acquisition of object permanence or the knowledge that objects continue to exist even when the infant is no longer looking at or actively aware of the object. Without object permanence objects simply do not continue to exist unless the infant is engaged with the object; with object permanence the infant can feel distress with the mother's absence and can use language to signify the absent object.

The preschool aged child gradually becomes less egocentric, that is, more able to take another person's perspective during the *pre-operational* stage that spans 2–7 years of age. Now the child begins to use symbols characterized by imaginary play and language to solve problems. Children then enter the *concrete operations* stage (7–11 years) and can use a variety of strategies to solve problems. For example, children begin to conserve, that is, to recognize that superficial changes in appearance do not change the quantity of an item; 10 pennies in a row are the same amount as ten pennies in a pile. By age 11 children enter the adult way of thinking, the *formal operations* stage where hypothetical, theoretical and abstract problems may be solved.

In recent years Piaget's theory has been criticized for underestimating children's abilities. Piaget likely did not adequately recognize the importance of school learning for cognitive development. He also likely placed too heavy a reliance on stages that are characterized by qualitatively different skills. Many current theorists argue that development is more continuous and gradual. An alternative viewpoint has been presented by Vygotsky who believed that children learn best in the *zone of proximal*

development where the individual still requires some assistance which is best provided by scaffolding or support to master the tasks. The information processing approach to cognitive development which likens cognition to a computer processing model has been the most successful challenger to date.

Language Development

Infants are born receptive and responsive to language [2, 3, 6]. Newborns can quickly learn their mother's voice and prefer it. They can discriminate even the smallest speech sounds of language. In general, receptive language abilities or the ability to understand language precedes and is more advanced than expressive language skills.

Newborns cry and soon begin to coo or produce vowel like sounds and later babble or produce consonant-vowel combinations. First words emerge around 12 months of age and most 2-year-olds can speak in short sentences. Using a strategy known as fast mapping, young children are able to quickly make the connection between a novel word and its meaning. Most children become near fluent in their language by around 5 years of age. They know how to create plurals and use tenses correctly and in addition are aware of the irregular nature of the English language, that is, while walk becomes walked in the past tense, teach becomes taught and not teached. In middle childhood children become more adept at using language correctly in its social context recognizing there are different requirements in formal and informal settings but most improvements are related to written rather than spoken language. These children also develop metalinguistic awareness in that they can think about language.

Emotional and Social Development

Newborns feel happiness and distress and by one year infants display curiosity, anger and fear among other emotions [4]. Self-conscious emotions such as shame and pride emerge during the toddler years as children develop self-awareness. In addition preschool children begin to develop the ability to interpret other's emotions or a theory of mind [4]. Improved language and cognitive skills assist with developing emotional self-regulation strategies and this can enhance self-esteem. Children develop the ability to deal with emotionally arousing situations and by making comparisons with peers develop the ability to understand how others view them. Play takes on a valuable role in developing emotional self-regulation as well as enhancing physical and cognitive development. Friends also become increasingly important. The primary psychosocial task of the adolescent is the attainment of an identity which can take many years [2, 6].

Relevance to Childhood Development

The field of child development is part of the broader field of human development and is also known as developmental psychology. Most theorists view development as a continual, cumulative, holistic and interactive process [3, 7]. While maturation guides the display of many initial behaviors such as walking and talking, learning explains the acquisition of most higher level skills such as reading, reasoning and empathizing. So maturation sets the blueprint but socialization or the transmission of beliefs, values and skills due to experience, defines the individual [7].

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Child Health Psychology

▶Health Psychology

Child Maltreatment

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Synonyms

Battered child syndrome; Child abuse; Child neglect; Child physical abuse; Child sexual abuse; Neglect; Neglected children; Psychological abuse; Psychological maltreatment; Shaken baby syndrome

Definition

Child maltreatment is the physical, sexual, or emotional abuse or neglect of a minor. Physical abuse consists of a non-accidental injury inflicted on a child by another person. Sexual abuse includes sexual assault and sexual exploitation of a child, such as rape, incest and child pornography. Emotional abuse occurs when non-physical forms of rejection and hostility interfere with the child's healthy development. Neglect refers to the omission of behaviors by a parent which, by their omission, cause harm or present a serious risk of harm to the child.

Description

Prevalence

Because perpetrators of child abuse attempt to hide their behavior from the public, the prevalence of child maltreatment is difficult to ascertain. Estimates of child maltreatment are based, in part, on substantiated reports of child abuse to state child welfare agencies, but because abuse is often undisclosed these reports underestimate the problem. Nevertheless, information obtained by the U.S. Department of Health and Human Services (DHHS) from its National Child Abuse and Neglect Data System (NCANDS) which obtains findings from each state's child welfare rolls, indicates that over 6 million children were investigated for the possibility of maltreatment in 2006, with an estimated 905,000 determined to be victims of abuse or neglect. The youngest children (from birth to age 1 year) had the highest rate of maltreatment. As has been the case in prior years, neglect accounted for the largest proportion of cases (60%), followed by physical abuse (16%), sexual abuse (9%) and emotional abuse (7%).

Estimates of the occurrence of maltreatment are also determined through retrospective surveys of adults who are asked about prior experiences of child abuse and neglect regardless of whether or not these experiences had been reported to authorities. As expected, these surveys find higher rates of child abuse and neglect than those obtained through state reporting systems; for example, in a recent national survey 19% of participants described three or more instances of neglect as a child; 14% indicated three or more episodes of physical abuse; while 4.5% disclosed that they had been sexually abused at least once by the time they entered 6th grade [4].

Risk Factors

There are a number of risk factors for child maltreatment, some related to child characteristics and others associated with family and environmental circumstances. Children with disabilities, lower intellectual ability, and difficult temperaments appear to be at greater risk than are other children for abuse. There are also differences in risk factors for specific forms of abuse, with girls more likely to be sexually abused, and boys more likely to experience physical abuse [2].

Family risk factors include high levels of familial discord and poor parent–child attachments. Children living in poverty or in single parent families are over-represented among child welfare services cases. Caution should be taken in interpreting this to mean that only low-income children are vulnerable to maltreatment, however, as families with financial means are better able to maintain their privacy from public agencies when problems occur. Nevertheless, children with one or more of these risk factors are easier targets of abuse, and less able to defend themselves or bring others to their defense when they are threatened by an adult.

Risk factors for neglect are somewhat different than those for other forms of child maltreatment. As neglect affects everyone in a family, specific child risk factors are not pertinent. Parents who neglect their children tend to have lower levels of education and income, and higher levels of depression and social isolation when compared to other families in which maltreatment occurs.

There is also a higher probability that children who have been sexually or physically abused will be re-victimized as adults and will have children who will also be abused. Explanations for this "intergenerational transmission" of abuse focus on the increased psychological vulnerability of children who have been maltreated in terms of their low self-esteem, poor affect regulation, possible dissociation under stress, and minimal social expectations. These factors put the individual at greater risk for developing unhealthy and potentially dangerous social relationships as an adult. Children who have experienced maltreatment are also likely to be impaired in their ability to form attachments to others, and to have had adult models who dealt with stress through aggression, sexual control, and denial. These factors also put maltreated children at risk as adults for domestic violence and abusive or neglectful relationships with their own children.

Identification/Characteristics of Maltreatment

Despite the untoward physical and emotional impact of maltreatment, children often do not report their abuse to others. Children maintain secrecy about their abuse for a number of reasons, including fear about the repercussions of their telling. Children worry that no one will

believe their report of abuse or neglect and that the maltreatment will increase and their circumstances become worse; they may also be concerned that if someone does believe their report they will be separated from their family, blamed for the family dissolution, and placed in a foster care home that is no better than their current living environment. Perpetrators perpetuate this fear with threats of harm to the child or others if the secret of the abuse becomes known. Children are most likely to report their abuse if there are other adults in their lives who they believe they can trust. Critical to their later healthy psychological functioning is the responsiveness of adults to children when they do report the occurrence of abuse. Children who are given support when they disclose their abuse have significantly better adjustment over time than do children who are not supported [6]. It is likely that those children who are not supported experience not only betrayal from others but also continued exposure to the danger they attempted to report.

As children are unlikely to disclose their own abuse, mandated reporters and other concerned adults need to be aware of the warning signs of abuse. There is no one cluster of symptoms associated with child maltreatment. However, certain patterns of behavior indicate a need to consider the possibility of child abuse or neglect. Foremost in these "signs" is a sudden change in the child's behavior or school performance, particularly when that change cannot easily be attributed to other causes. This change in behavior may be reflected in depression and isolation, in overly aggressive behavior, or in regression to a less age-appropriate manner of functioning. Further, children who have been maltreated are often fearful and anxious without apparent reason. Unexplained bruises or school absences to hide injuries may suggest physical abuse, while children who consistently appear unkempt, hungry or tired, or whose physical, academic or social problems go unmet despite awareness by their parents, may be experiencing neglect. Child sexual abuse is often associated with nightmares, depression and aggression, as well as sexualized responses to others. Children who have been maltreated are also more likely than others to engage in self-injurious behavior, somatic complaints, suicide attempts, drug and alcohol use and delinquent behaviors. No one behavior is a definitive sign of abuse, and the symptoms described here may also reflect other psychological conditions. However, children who evidence one or more of these behaviors over a period of time warrant an assessment to determine the full nature of their needs and whether or not maltreatment is contributing to their problems.

Despite the high likelihood of maltreated children displaying one or more of these symptoms, some children with substantiated maltreatment appear to remain asymptomatic. Even longitudinal studies on children who have been maltreated occur within a specific timeframes and with a finite number of measures; thus, it is possible that children do not remain fully asymptomatic but show symptoms of their maltreatment at a later time in their development or in ways not assessed by investigators. It is also the case however, that many children who are maltreated are exposed to multiple other risk factors, including family discord, poverty, and social isolation. Children who appear asymptomatic may be more resilient than other maltreated children because they have stronger internal coping skills and more external protective factors including social supports which help compensate for the impact of the maltreatment and provide a solid psychosocial base for their development.

Parents may also exhibit behaviors that suggest that they are maltreating their child, particularly in conjunction with observations of troubling child behaviors. For example, when parents demonstrate little concern for the child in the face of symptomatic behavior, deny the existence of problems, blame the child for family problems, talk about the child solely in negative terms, demand extremely high levels of performance, and support rigid and harsh disciplinary practices, these behaviors should be considered as possible signals of abuse or neglect.

Perpetrators of Maltreatment

Adults who engage in child abuse or neglect vary in their age, motivation, history of abuse, and relationship to the child. There is no one offender profile, although offenders are more often family members or other adults close to the child than they are strangers.

Neglect always occurs in the home as a result of parental behavior (or lack of protective behavior). Neglect can occur in both dual parent and single parent homes; however, it is more likely to occur in single-parent homes, and given the higher likelihood that women will assume the role of single parent, it is not surprising that women are more likely than men to be responsible for child neglect. Mothers who neglect their children tend to be younger, have less education, and indicate higher levels of depression, passivity, stress and social isolation relative to mothers who do not neglect their children, including those who are involved in other forms of abuse.

Physical and sexual abuse can occur at the hands of either intra-familial or extra-familial offenders. Surveys show that intra-familial abuse is more common than is extra-familial abuse, and that men are more likely than

women to be the offender. There are considerable differences in the motivations for offenders. Sexual offenders may have preferences for children at specific ages (preschool, preadolescent, or adolescent) or for a specific gender, while offenders who engage in physical abuse may have global anger management problems or focal periods of stress that results in their turning their rage more specifically on their families. Substance abuse is common among offenders, as it is a response to stress which also reduces inhibitions and may exacerbate abusive behaviors. Understanding the risk factors that trigger offenders and the interventions needed to inhibit their activities are topics outside the scope of this paper.

Legal Protection of Maltreated Children

Federal legislation to protect children from abuse and neglect is delineated in the Child Abuse Prevention and Treatment Act (CAPTA). CAPTA was passed in 1974, then amended and reformulated over the next 30 years, until its most recent re-authorization in 2003 though the Keeping Children and Families Safe Act. CAPTA provides funding to states to support services for prevention, assessment, investigation, prosecution and treatment of child maltreatment. Federal definitions for child abuse and neglect focus on actions or failures to act by parents or caregivers which result in death, serious physical or emotional harm, sexual abuse or exploitation, or which present an imminent risk of serious harm. Interpretations and augmentation of this law to identify children in need of protective services, and the development and implementation of services for maltreated children, varies across states.

Reporting Child Maltreatment

All states in the U.S. have mandatory reporting laws that identify those professionals who are required to report suspected child abuse and neglect. Mandated reporters vary, but typically include psychologists, school teachers and administrators, social workers, law enforcement officers, childcare providers and health care workers. Some states require all citizens who suspect child abuse or neglect to report it to authorities, while all states permit, but do not require, any person who suspects child maltreatment to report it. Standards for reporting vary across states. A report must be made when one has reasonable suspicion that harm to the child has occurred, or that the child is exposed to conditions under which harm is likely to occur. In a majority of states, the identity of the reporter is protected and not disclosed even when other records are made available. Reports are made to child welfare agencies, which document the call and determine whether visitation, investigation, and possible separation of the child from the family is necessary. The police may also be called to investigate and file charges as necessary.

Mandated reporters are, at times, reluctant to report suspected abuse. This reluctance may be due to lack of knowledge about the warning signs of abuse, concern about the negative impact of reporting, or a desire not to get involved in this type of problem. Mandated reporters need training to assure that they are aware of the signs of abuse and understand the importance of the requirement to report.

Prevention of Maltreatment

Two types of prevention programs have been widely utilized for child maltreatment: school-based programs, designed to educate all children about risk and safety issues, and home-based programs, focused on families that appear to be at-risk for abuse or neglect.

School-based child abuse prevention programs are available across the country, with children often participating in one or more over the course of their education. These programs can be as brief as one group meeting or involve multiple sessions over the course of weeks or months. The focus of these programs varies as a function of grade level, with different curricula implemented for children in kindergarten, elementary school, junior high and high school. At younger ages, programs typically focus on helping children identify abusive behaviors through discussion of private parts of the body and identification of "good-touch, bad-touch" from others, as well as identification of a "safety plan" if they are approached by a stranger. At older ages, other safety concepts are introduced such as the need to tell others if one is being maltreated, with many programs utilizing a "yell and tell" philosophy. Adolescent programs also include information on date rape. While these programs are effective in imparting information, it is not clear that the strategies that endorse are as effective in preventing the more common intra-familial abuse as they are in preventing the less common extra-familial abuse [5]. In particular, the traditional "yell and tell" strategies adopted to hinder stranger abuse may not work when the child is living with the abuser, as children are often reluctant to "tell" on or disrupt their families regardless of their circumstances. School-based programs are implemented because of their wide reach to children, but are not sufficient to prevent child abuse among participants.

Home-visitation programs are also implemented for families at risk for child abuse or neglect. These programs focus on families who have been determined to have multiple risk characteristics associated with child maltreatment; these might include a young parental age,

single parenting, a history of abuse or domestic violence, low income, limited or no prenatal care, and poor birth outcomes. Programs may be staffed by trained volunteers or medical or mental health professionals and involve home-based treatment including observations, modeling of healthy adult-child interactions, and information regarding medical needs, child development, and parenting skills. Many of these programs have been effective in reducing referrals for domestic violence and abuse and neglect (e.g., [3]).

Interventions for Maltreated Children

Several types of interventions have been used to help children recover from the trauma of maltreatment, including play therapy, cognitive behavior therapy (CBT) and family-focused therapy.

Play therapy is used with younger children to allow them to work through the emotional distress and confusion associated with physical or sexual abuse. Using dolls, puppets, or other toys, children can re-enact scenes of their abuse in a safe environment and reflect emotions which might be difficult for them to articulate. Through this re-enactment the therapist can help the child express and understand their feelings, attribute blame and causation appropriately and regain a sense of self-control.

Cognitive behavioral (CBT) is effective for reducing many of the trauma-related symptoms associated with child maltreatment. Trauma-focused CBT [1] was designed specifically to ameliorate the symptoms which are often associated with experience of a traumatic event. Thus, trauma-focused CBT helps reduce fear, through graded exposure and relaxation techniques; decrease cognitive distortions, such as self-blame or a view of the world as generally unsafe, through identification, evaluation and replacement of distorted and catastrophic thoughts with more accurate ones; manage stress through relaxation and thought stopping for ruminative anxieties; and reduce parental distress, through similar components of CBT as those used for the child.

Children who have been maltreated also benefit when their parents receive therapeutic interventions, as parents who are able to come to terms with the abuse are better able to help their children manage their thoughts and feelings about it. When parents are the abuser(s), they are likely to be separated from the child by the courts, for a period of time if not forever. Offending parents may also receive anger management and parenting classes, particularly if the goal is to reunite with the child. The non-offending parent also needs interventions to help reduce their distress, as this will better allow them to provide support to the child and facilitate their child's recovery. For the non-offending parent, interventions can include correcting cognitive distortions about themselves and their child; allowing them to express and work through their emotions about the abuse; and helping them to understand the abuse from the child's perspective and how to more effectively support, protect and parent their child.

Finally, many maltreated children enter foster care; children can remain in that system for shorter periods of time if their parents seek treatment, or they may remain in foster care for the duration of their childhood. While this removes the child from potential danger, it also separates them from their major attachment figures, while relocation may also mean a disruption in schooling and in peer relationships. Children who have been abused or neglected may present special challenges to foster parents as they continue to anticipate abuse from adults and respond accordingly. It is important for foster families who work with maltreated children to be trained to understand and address their special needs.

Relevance to Childhood Development

Child maltreatment can have a significant impact on many areas of child development. The impact of child maltreatment will vary based on the type of maltreatment, the age at which it occurred, its duration and its severity, the relationship of the offender to the child, and the presence of protective factors in the child's life. These protective factors include personal resilience in the form of coping strategies, the ability to regulate one's emotions and attributions of blame for the abuse to external rather than internal factors, and external supports, including the presence of positive attachment figures. Nevertheless, certain types of developmental problems appear common among children who have been maltreated. While some developmental problems are associated with specific forms of maltreatment, children who are maltreated are often exposed to multiple forms of abuse, and may, therefore, display a range of these symptoms.

Abuse and neglect can interfere with the biological and psychological development of the child. Children who are maltreated are subject to severe and sometimes prolonged stress, resulting in over-activation of areas of the brain and the limbic system responsible for responses to stress. Stress results in activation of the hypothalamus, pituitary, adrenal cortex, sympathetic nervous system, certain neurotransmitters, and the immune system. In particular, Cortisol, a hormone excreted during stress-related "fight or flight" responses is evident at higher levels and for sustained periods of time in maltreated children.

As a result of this sustained experience of stress, children can become easily agitated or numb in addressing new, potentially stressful situations and manifest difficulties in self-regulating their emotions. Relative to other children, children who have been maltreated have difficulty regulating their emotional responses and are more likely to experience dissociative responses to stress. While dissociation, the emotional separation from stressful events, is a coping mechanism, it also limits one's ability to learn to work through emotionally challenging situations, and puts one at risk for unknowingly entering other dangerous environments. Maltreatment is a risk factor for post-traumatic stress disorder (PTSD), a biologically-based, psychological disorder which includes symptoms such as anxious arousal, social avoidance, intrusive thoughts, and flashbacks to traumatic events.

Maltreatment may also affect the child's cognitive development and school performance [7]. Due to the critical role of adults in early language development, neglected children in particular often have delayed or limited language development. Children who are maltreated often have academic delays, which can be ascribed to a variety of factors. For example, children who have been sexually abused may have difficulties concentrating in school, while children who have been physically abused may be truant to avoid disclosure of bruises or other signs of abuse.

The development of social skills and social relationships are also affected by maltreatment. Maltreatment is associated with a greater likelihood of drug and alcohol use, perceptions of social stigma, and social isolation. Problems with early attachments to caregivers can leave youth mistrustful or overly compliant in future attachments, either isolating themselves or forming bonds to others without discretion. Cognitively, children who have been maltreated may misread social cues based on their expectation of abusive behavior from others. Modeling what they have observed, children who have experienced physical abuse are also more likely than children who have not been abused to respond to conflicts in an aggressive manner. Children who have been sexually abused tend to over-sexualize their relationships, and have a greater likelihood than other children of engaging in promiscuous relationships or becoming pregnant at a young age.

Finally, children who have been maltreated are more likely than children who have not been maltreated to become victimized as adults. Explanations of the relationship between early abuse and subsequent victimization focus on the increased vulnerability of children who have been abused to social exploitation [8]. This increased vulnerability can be attributed to a number of factors, including a greater likelihood of engaging in early sexual activity, coupled with poor social judgment as a result of low expectations and poor self-esteem. Further, the psychological sequala of trauma, including dissociation and depression, as well as the use of drugs and alcohol to suppress feelings of psychological distress, may also increase vulnerability to future victimization by decreasing the individual's ability to accurately judge the safety or danger of social situations.

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Child Neglect

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Synonyms

Child maltreatment; Neglect; Neglected children

Definition

Child Neglect is a type of maltreatment where the child's basic needs are not met.

Description

Neglect may include failure to provide educational, emotional, and/or physical necessities [1]. Educational neglect may include failure to enroll a child in school or ignoring special educational needs. Emotional neglect may include failure to provide adequate psychological support, failure to provide affection, failure to remove a child from situations of domestic violence, and/or failure to provide mental health care. Physical neglect consists of failure to provide shelter, abandonment, malnutrition, inadequate supervision, and/or failure to provide medical attention. Consideration must be made regarding a child's culture and socioeconomic status regarding failure to provide education, emotional, medical, or physical needs [2, 3]. Neglect may also occur in the presence of other forms of maltreatment such as emotional, psychological, physical, or sexual abuse.

In the United States [2], childhood neglect accounts for over half of all the documented cases of child maltreatment. Young children are more likely to be neglected than older children and adolescents. Neglect may be more common in single parent homes and in families who are poverty stricken. Mothers [2] overwhelmingly commit child neglect compared to fathers, perhaps due to their primary caregiver status.

Neglect may be chronic or acute and can have a multidimensional impact on a child's development. Young children who are neglected may show somatic symptoms such as headaches, bed-wetting, stomachaches, and enuresis. Gender may influence how older children exhibit symptoms of neglect, such as boys tending to be more aggressive and girls tending to exhibit signs of passivity and low self-esteem [2]. In general children may show physical symptoms such as failure-to-thrive, sleep disturbances, stomachaches, bed-wetting, ulcers, regression in developmental milestones, and stunted physical development due to poor nutrition. In addition to being aggressive or passive, children may also be hyperactive and show signs of incompetence. Neglected children may also show extreme dependence on teachers, lack of enthusiasm, change in academic performance, parentification of siblings, and/or learning difficulties. Cognitively, children may have delays in functioning, low self-esteem, and/or exhibit academic difficulties [1, 2]. If neglect is present at certain critical periods of cognitive development, a lack of sensory stimulation may adversely influence brain development [3]. Specifically, neglect may lead to the underdevelopment of the cortex in the brain as well as limbic system dysfunction [4].

Additionally, maltreated children may have insecure attachments to their caregivers and have problems with emotion regulation, which may lead to alterations in the hypothalamic-pituitary-adrenal axis, the stress regulation system. Poor emotion regulation may influence children to show aggressive or withdrawal patterns with their peers. Without proper intervention and treatment, children who are maltreated may be affected well into adulthood. As adolescents and adults, they may abuse substances, show symptoms of psychiatric disorders, and engage in criminal behavior [2].

Treatment for children who have been neglected is often focused on their primary caregivers. Such treatment may include training in hygiene, finance, and family competence, counseling, and referrals to resources that may help the family. In addition, treatment may include child rearing classes and stress management training. Cognitive-behavioral treatment is most commonly used to teach caregivers self-management skills and modify problematic behaviors [2].

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Child Physical Abuse

►Child Maltreatment

Child Psychology

►Child Development
►Play-Group Therapy

Child Psychotherapy

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Synonyms
Child counseling

Definition
The practice of psychotherapy with children.

Description
Child psychotherapy is based on the early work of Anna Freud during World War II in England when children were gathered in safe areas, often away from their parents. Due to the trauma of war and separation from their parents, these children were observed and treated according to Freudian concepts, albeit modified and extended to meet the needs of their developmental level. A model for conceptualizing psychological development and psychopathology was established in accordance with the model for child psychotherapy itself. A key element of child psychotherapy, as conceptualized by Anna Freud and other psychoanalytic theorists, is the communication of one's inner experience and having it attended to and understood by a nonjudgmental other.

Child psychotherapy is distinguished from adult psychotherapy in that adults are generally able to verbalize their thoughts and inner experience via talk therapy or free association, whereas children express their inner experience through play, e.g., storytelling, doll play, enactments of scenes. From this fundamental understanding of how children gain insight into, and learn to master, emotional and inner experience, child psychotherapy has evolved alongside adult psychotherapy. There are now as many models of child psychotherapy and empirically established types as there are for adults, including cognitive-behavioral, psychodynamic and interpersonal therapies.

Relevance to Childhood Development
Psychotherapy with children provided a means of gaining access to children's inner psychological experience. It became possible to gain insight into their psychology in regards to both normal and psychopathological or maladaptive development, and to observe the many developmental phases, tasks or processes associated with different ages. Anna Freud [1] first conceptualized children's lines of development including id, ego, and superego development but recent models [2] comprehend adaptive and maladaptive development in relation to culture, family context, temperament and genetic predisposition.

Child psychotherapy also provided child development studies with important knowledge and insights regarding psychopathology, emotional disturbance, maladaptive cognitive and personality functioning, from clinical work with children. Child psychotherapy has provided a growing body of clinical and research literature on both normal or adaptive development and psychopathology or maladaptive development.

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Child Rape

►Self Identity: Sexual Abuse of Adolescents

Child Rearing Practices

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Synonyms
Parenting styles; Patterns of parental behaviors

Definition
Different styles of parenting or approaches to parenting that affect a child's social and emotional development.

Description
Developmental psychologists have long been interested in the way parenting styles affect the social development of their children. Although parents are not the only contributing agents to the socialization of children, the family has always been considered a major arena for socialization.

In the early 20th century there were two major theories that explained the role of the parents and how it affected the child's development [7, 8]. The psychoanalytic theory which believed in two major intrapsychic forces

(aggression and the libido) was mostly concerned with children's emotional states rather than behavior. According to psychoanalysts, the individual differences in the emotional relationships between parents and children are the result of different parenting attitudes.

The second theory was the behaviorist and social learning perspective which focused more on parental practices rather than attitudes. The behaviorist perspective saw parents as the teachers and children as the learners, and the differences in children's development were believed to reflect differences in the learning environment to which they had been exposed [7, 8].

Despite the challenges faced by researchers in the establishment of links between parent–child interaction and children's socialization, three kinds of parenting styles were first distinguished by Diana Baumrind: authoritarian, authoritative and permissive [1–3, 6]. Baumrind identified four parental attributes on which parents could be compared, and based on these attributes parents were placed into one of the above categories [2]. These attributes were parental control, maturity demands, clarity of communication and nurturance. Further research by Baumrind in 1971 yielded a new style of parenting which she called "harmonious" [3] while Maccoby and Martin in the 1980s suggested a fourth category of parenting style and named it the "uninvolved parents" [9].

The four parenting styles

Authoritarian parents are demanding and controlling and expect nothing less than complete obedience from the child. These parents have a set of absolute values and standards of conduct and attempt to shape, control, and evaluate the child's behavior according to those standards. Authoritarian parents do not consider the child's point of view, verbal give-and-take is discouraged, and forceful measures of punishment are used as discipline [1, 2, 5, 6].

Authoritative parents encourage verbal communication with the child and consider his/her point of view. They do believe in parental control but are not rigid, punitive or intrusive, and they share with the child the reasoning behind their rules. The authoritative parents expect mature behavior and enforce rules but they also encourage the child's independence [1, 2, 5, 6].

Permissive parents attempt to provide a non-punitive, accepting and affirmative environment, in which they consult with the child about policy decisions, gives explanations about family rules and in which children regulate their own behavior as much as possible. Permissive parents rarely use punishment or make demands of their children, are extremely tolerant, even when it comes to aggressive or other inappropriate behaviors [1, 2, 5, 6].

Uninvolved parents impose very few demands on their children, are characterized by low responsiveness and little communication with them. Although these parents fulfill their children's needs they are generally detached from their lives, and in some extreme case they may even neglect or reject their children's needs [9].

Child rearing practices and children's characteristics

Diana Baumrind conducted several studies in an attempt to show the relationship between her categories of parenting and the four parental attributes used to compare parents. According to Baumrind, authoritarian parents are high on control and maturity demands but low on nurturance and communication. Permissive parents are low on control and maturity demands and high on nurturance and communication. Finally, authoritative parents are high on all four attributes of parental behavior [1, 3]. This led Baumrind to conclude that authoritative parents are most desirable.

Further research examined parental behaviors and how these behaviors influenced children's characteristics. Children of authoritarian parents tend to be obedient but are also passive, withdrawn and distrustful, they tend not to take initiative in social situations, they lack enthusiasm and spontaneity, they tend to exhibit a low need for achievement, and girls are shy while boys are hostile [1, 3, 9]. Punitive, hostile and non-empathic disciplinary methods, used by authoritarian parents, are associated with cognitive and emotional disturbance while high demands and other manifestations of parental authority can provoke rebelliousness in children [1].

Children of permissive parents exhibit impulsivity, low self-reliance, low maturity and low self-control. They also lack in social responsibility and have higher aggression levels than children of authoritative parents. No demands, sidestepping of conflicts, offering too much help and setting low standards, all behaviors of permissive parents, can understimulate the child and as a result he/she fails to achieve the knowledge and experience necessary in the enhancement of his/her independence [1, 3].

Finally, authoritative parenting was often associated with self-assertive, independent, friendly and cooperative children, who exhibited high competence and a high need for achievement [1–3]. Emotional support, high standards, providing appropriate autonomy, being attentive and responsive to children's needs, and clear communication, all attributes of authoritative parents, have been shown to help children develop what Baumrind calls instrumental competence, which is characterized by the balancing of individual and societal needs and responsibilities [3, 7].

Although research has shown that parenting styles can affect the social development of a child, other research has pointed out how certain characteristics of a child can affect the parent's behavior. Sex seems to be a factor in the degree of punitive behavior as parents may advocate less punishment for females than for males who engage in the same behavior. The age of the child and experience in parenting (single individuals as opposed to parents, a new parent or a parent with one or more children) also played a role in the parental response [5]. Other factors like socioeconomic level, children from traditional or non-traditional families and children from one or two adult households also influenced parenting practices [4]. Biological or adoptive parents in martially intact families tended to show more positive parenting as well as coparenting practices as compared to parents in other family structures, and children from two biological parent families showed better adjustment than children from other family configurations [4].

Relevance to Childhood Development

Many researchers have been interested in the way different types of parenting might affect children's social and emotional development. By defining parenting styles and by carrying out research in this field it was possible to show the correlation between parental and child behavior as well as the typical characteristics a child develops as a result of the type of parenting style their caregiver uses. On the basis of this same research, researchers were also able to define a number of parental practices and attitudes that seem to facilitate the development of independent behavior and social responsibility in children.

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Child Relationship Enhancement Family Therapy (CREFT)

▶Filial Therapy

Child Sexual Abuse

▶Child Maltreatment

Child Therapists

▶Child Counselors

Child Therapy

▶Play-Group Therapy

Child Victimization

▶Child Abuse

Child's Position

▶Birth Order

Childbirth

▶Birth Process

Child-Center Assessment

►Play-Based Assessment

Child-Centered Parenting

►Inductive Parenting

Child-Centered Play Therapy

►Play Therapy

Child-Centered Therapy

►Play-Group Therapy

Child-Directed Speech

►Baby Talk

Childhood

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Synonyms

Age of youth; Post-infancy

Definition

Childhood is a general term that describes the years in human development between infancy and adulthood. Childhood is divided into the additional phases of toddlerhood, early childhood, middle childhood, and adolescence. During childhood, a significant amount of care must be provided by parental figures.

Description

Childhood describes the years after *infancy* (an individual who is 1–12 months old), yet prior to *adulthood* (an individual who is post-puberty). The age at which childhood ends varies among countries, but the most common age is when an individual turns 18 years old.

Childhood is divided into four stages – toddlerhood, early childhood, middle childhood, and adolescence. These four stages are described below.

1. *Toddlerhood* includes the ages between 12 and 18 months and is the stage at which individuals typically learn to walk.
2. *Early childhood* typically includes children between the ages of 2–6-years-old, which are typically associated with play.
3. *Middle childhood* includes children between 6 and 8 years old. Middle childhood is typically associated with school.
4. *Adolescence* is the last stage of childhood. Adolescence includes children at the ages of post-*puberty*.

Relevance to Childhood Development

Childhood is an eventful series of years in which much development occurs. For example, the ability to learn is inherited. In addition, the capacity to remember, process information and solve problems is apparent at basic levels throughout all stages of childhood. In addition, there are several theorists who have explored different aspects of childhood development. Some of the more read theorists are Sigmund Freud, Erik Erikson, Jean Piaget, and John Bowbly. In addition behavioral theories of children development are based upon the theories created by John B. Watson, Ivan Pavlov, and B.F. Skinner.

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Childhood Amnesia

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Synonyms

Infantile amnesia

Definition

The inability to recall events from early childhood.

Description

Childhood amnesia is characterized by a relative absence of memory before the ages of 3 or 4 [1, 5]. This term does not refer to a complete absence of memories but rather a scarcity of memories during infancy, memories that can later be influenced by individual experiences and cultural factors as well as how these early events are remembered and relayed to the children by parents [2, 9]. A few people can apparently recall momentous experiences that occurred when they were as young as 2 years old, such as the birth of a sibling but not earlier. Of course we all retain procedural memories from our toddler years, when we first learned to use the spoon, drink from a cup and take our first steps, just as we can retain semantic memories acquired in early life (the rules of counting, names of people and things, etc.). However, as adults we can no longer remember being fed as an infant by our parents, taking the first steps or saying our first words. That's the result of childhood amnesia [5].

Explanations for Childhood Amnesia

Childhood amnesia was first formally studied in 1893 by the psychologist Caroline Miles [1] but it was Sigmund Freud who offered one of the most famous and controversial explanations of childhood amnesia when he tied the phenomenon in with his other psychological theories [1, 5, 8, 9]. Freud theorized that childhood amnesia is the result of the mind's attempt to repress memories of traumatic events that occur in the psychosexual development of every child. These memories, according to Freud, have disturbing sexual and aggressive content and that's why they are suppressed. This would lead to the repression of the majority of the first years of life [1, 4, 5, 7–9].

Cognitive developmentalists claim that adults have trouble recalling the events of childhood because they no longer think as children do. As adults we use very different cognitive schemas from those we use in early childhood, and these adult schemas are not useful in restructuring early events from the memories stored at that time. As preschoolers we may encode our experiences far less elaborately since our information processing abilities are still limited and thus have very few cues for retrieving early memories later on in life. Only after we begin school do we learn to think as adults do, use language to organize memories and store not only events but thoughts about those events [9, 10].

Researchers who argue that the development of the cognitive self is crucial in the establishment of autobiographical memory do not disagree that developments in language, socioemotional and memory factors are also play an important role in autobiographical memory. Research has shown that what's lacking in early infant memory is not simply a memory capacity or a language system but rather the development of self as a cognitive entity, a personal frame of reference that constitutes memory autobiographical in a unique way [5]. According to this theory, children develop self-awareness by about 2 years of age and memories are inherently associated with one's sense of self. When memories are encoded before self-awareness develops they are not comprehensible to the individual even though some information is stored in the brain.

Biological researchers believe that the brain and the nervous system are not entirely formed in young children and thus do not allow for the development of adequate memory stores and effective retrieval strategy. Evidence for this comes from three different sources. First, that the hippocampal region of the forebrain is immature in young children. Second, that the prefrontal cortex is immature at birth and undergoes a period of rapid synaptogenesis toward the end of the first postnatal year along with the improvement of other cognitive tasks. Finally, the third source states that these changes in synaptic efficiency or hormonal modulation that follow certain types of stimulation may only become functional beyond infancy [5, 7, 9].

Another explanation attributes the cause of childhood amnesia to the incomplete development of language in young children. This theory states that infants do not have the language capacity to encode autobiographical memories in such a way that their adult selves can interpret correctly. Research by Gabrielle Simcock and Harlene Hayne showed children's inability to translate early, preverbal experiences into language because they lacked the language skills to do so. As a result these experiences could not

become part of autobiographical memory since they could not be encoded [4, 8]. This theory seems to be supported by the typical process of language development. The language of 1-year olds is limited to one-word utterances and childhood amnesia predicts that adults have very few, if any, memories of this time. By the age of 3 children utter two or three word sentences and by their fifth year their speech resembles that of an adult. This language development seems to correspond to childhood amnesia because most adults' earliest recallable memories go back to the age of 3 or 4.

Recent research has found patterns in the extent of childhood amnesia and the most prominent ones are gender and race. Research has shown that in general the earliest recollections of females are earlier and more vivid than those of males, and this pattern is due to differences in how males and females interact as children, especially the types of conversations they have [3, 6].

Race has also been shown to play a role in the effect of childhood amnesia as in certain studies Asian adults reported significantly later memories than European adults, while Maori adults, whose traditional culture puts an emphasis on the past, reported significantly earlier memories than adults in the other two cultural groups. In all three cultures the memories reported by females contained a lot more information than those reported by men [6].

Relevance to Childhood Development

Childhood amnesia provides an explanation to the adults' inability to recall events and experiences from their early years. People often find childhood amnesia difficult to accept and often claim to remember events from the first or second year of life. Researchers who explore childhood cognitive development, and continue to research childhood amnesia aim to identify new characteristics and possible explanations for this phenomenon. Whatever the explanation for childhood amnesia, scientists agree that our first memories may provide some useful insight into our personalities and they prove to be an important social tool.

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Childhood Aphasia

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Synonyms

Acquired epileptic aphasia; Agraphia; Alexia; Anomic aphasia; Aphasia with convulsive disorder; Aphemia; Broca's aphasia; Central aphasia; Conduction aphasia; Expressive aphasia, fluent aphasia, infantile acquired aphasia; Isolation aphasia; Non-fluent aphasia, receptive aphasia; Sensory aphasia; Subcortical aphasia; Transcortical motor aphasia; Transcortical sensory aphasia; Wernicke's aphasia; Word deafness.

Definition

Aphasia refers to a loss or disruption of the ability to understand or produce language through spoken or written words due to injury to specific areas of the brain involved in language, almost always located in the left-hemisphere of the brain. Disruption in language due to low intellect, loss of sensation, or poor motor control or coordination of the mouth is not considered aphasia.

Description

Aphasias encompass a variety of syndromes and include specific deficits to reading (alexia), writing (agraphia), and

ability to speak and repeat words (word deafness). They also involve declines in the reception and expression of language. Aphasias affecting spoken language are often classified according to the neuroanatomical areas that are affected and can be grouped as to whether or not speech is fluent or non-fluent [7, 8].

Non-fluent aphasias are mostly related to problems in the expression of speech. ►Broca's Area (Brodman areas 44 and 45) controls language production. It lies in the opercular and triangular sections of the interior frontal gyrus of the dominant hemisphere of the frontal lobe of the brain [7]. Broca's aphasia, also known as expressive aphasia or non-fluent aphasia, presents as non-fluent speech with impaired repetition and naming, and is often characterized by short meaningful phrases spoken with great effort. Language comprehension is relatively preserved. Another non-fluent language disorder, global aphasia, involves severe communication difficulties in expression, comprehension, and repetition. Transcortical mixed aphasia or isolation aphasia is similar to global aphasia expect that repetition is intact.

Fluent aphasias involve problems with language comprehension. Wernicke's Area controls auditory comprehension and is located in the posterior portion of the superior temporal gyrus (i.e., Brodman area 22) [7]. Wernicke's aphasia, also called sensory aphasia, fluent aphasia, or receptive aphasia, is characterized by an inability to comprehend speech or to arrange sounds into coherent dialogue. Individuals with Wernicke's aphasia speak fluently but non-sensically, may create their own words, have deficits in naming and repetition, and have difficulty understanding written or spoken language. Speech is also fluent in anomic aphasia which is characterized by deficits in naming only. Transcortical aphasias are named by the neuroanatomical area associated with observed functional deficits: the motor areas or the sensory areas of the brain. Transcortical aphasia, by definition, affects the parts of the brain around either the expressive or receptive language centers; thus, transcortical motor aphasia involves problems with expressive speech while transcortical sensory aphasia involved problems comprehending language. They are fluent or non-fluent depending on location. Repetition is intact in transcortical motor and sensory aphasia differing it from either Broca's or Wernicke's aphasia. The neural pathway that connects Broca's and Wernicke's areas, the arcuate fasciculus is thought to be involved in repetition [7, 12, 13]. Conduction aphasia or central aphasia is caused by damage to the arcuate fasciculus and involves poor repetition with intact comprehension and expression. Damage to subcortical regions, such as the thalamus, internal capsule, and basal ganglia, can also cause aphasic symptoms. Subcortical aphasia can involve the full range of symptoms depending on the affected location.

Relevance to Childhood Development

Aphasia can affect individuals of all ages including children. While presenting symptoms may be similar in both age groups, there are different considerations to make when examining children and adults. Specifically, it is important to rule out factors which may have contributed to the child's presentation. Examination of developmental level (e.g., are the child's deficits due to a developmental disorder?), environment (e.g., are language deficits secondary to low levels of stimulus?), and history (e.g., any prenatal substance abuse, medical illness, psychiatric illness, etc.) may help to determine etiology.

Etiology is often the same in adults and children with symptoms frequently due to head trauma, stroke, infection, brain tumor, or other brain disorders [1, 3, 4, 7–9, 12, 13, 15]. Any condition affecting the language centers of the brain can cause aphasia, including several viruses (e.g. Epstein-Barr virus) and seizure disorders [4]. As an example, Landau Kleffner Syndrome (LKS) or infantile acquired aphasia, acquired epileptic aphasia, or aphasia with convulsive disorder, involves a slow or rapid onset of loss of the ability to comprehend or use spoken language following an otherwise normal development due to abnormal electrical discharge across the brain [1, 10].

The primary treatment of childhood aphasia is speech therapy [1]. Techniques vary according to deficits. The child may be asked to complete tasks to exercise facial muscles, repeat words, name objects, engage in activities to promote give-and-take conversation, learn sign language, use flash cards, practice reading and writing, etc. Medical treatments, such as surgery or medication, may be used to treat the primary causes of the aphasia, such as releasing cerebral pressure following traumatic brain injury or controlling seizure activity in LKS. Prognosis and outcome vary by etiology.

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Childhood Disintegrative Disorder

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Synonyms

Autism spectrum disorders; Pervasive developmental disorders

Definition

Onset of this disorder occurs after 2 or more years of normal childhood development. It is characterized by abrupt regression and loss of proficiency in cognitive, verbal, and motor skills within several months.

Description

Childhood Disintegrative Disorder (CDD) is primarily characterized by abrupt regression and loss of proficiency in cognitive, verbal, and motor skills that occurs after 2 or more years of normal development. CDD is contained within the family of Pervasive Developmental Disorders (PDDs) but differs from other PDDs such as Autism in that the symptoms appear after a period of seemingly normal development. The age of onset requirement for CDD also is different from that of Autism, as the age of onset for CDD is prior to 10 years of age. Diagnostic criteria mimic Autism in language, social interactions, and the child's self-sufficient behaviors (e.g., repetitive behaviors and fecal and bladder incontinence).

Some children experience brief traits of CDD and then become asymptomatic, however, the majority of children face atrophy of previous developmental milestones to the point of mental retardation. CDD is a very rare disorder, and diagnosis requires extensive neurological and developmental evaluations.

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Childhood Leukemia

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Synonyms

Acute lymphocytic leukemia (ALL); Acute myelogenous leukemia (AML); Acute promyelocytic leukemia (APL); Chronic lymphocytic leukemia (CLL); Chronic myelogenous leukemia (CML); Juvenile myelomonocytic leukemia (JMML); Mixed lineage leukemia

Definition

Leukemia is a progressive cancer of bone marrow and other blood-forming organs, in which abnormal leukocytes are produced and spread to other organs of the body.

Description

Leukemia, one of the most common forms of cancer in children, can appear as soon as the age of one or as late as the early teen years. While childhood leukemia is considered to be a rare disease, it accounts for 33% of all childhood cancers. Approximately one in one thousand children will be diagnosed with leukemia by the age of 19 but it is more common in children under the age of ten. The American Cancer Society projects that three out of four children diagnosed with leukemia will have acute lymphocytic leukemia (ALL). Most of the remaining will

be acute myelogenous leukemia (AML). There are many different types of childhood leukemia which are classified as either fast-growing (acute) or slow-growing (chronic). Leukemia is defined as a cancer that attacks the early blood forming blood cells, typically the white blood cells. It begins in the bone marrow and spreads next to the blood and then the lymph nodes, spleen, liver, the brain and spinal cord and on.

ALL occurs most commonly in children between the ages of two to four years of age, while AML either occurs during the first two years of life or during the teen years. ALL is slightly more common among white, male children and AML is occurs equally among boys and girls of all races. The survival rate for ALL is now more than 80% thanks to medical advancements. The 5 year survival rates for AML are now more than 50%.

Risk Factors

While certain risk factors may increase the likelihood of developing childhood leukemia, there is no known cause. The risk factors include being born with an abnormal immune system, exposure to high levels of radiation, previous treatment with radiation or chemotherapy, or taking medications which suppress the immune system. Currently there are no tests available for early detection of leukemia so early detection of symptoms is important. Symptoms are caused by the invasion of abnormal blood cells from the bone marrow into the body. These cancerous cells affect the production of blood in the bone marrow and also affect the organs to which they spread, such as the liver, lymph nodes, or central nervous system. Parents need to be on the watch for the symptoms which include: constant fatigue, loss of color in the skin, increased bleeding (most noticeable on minor cuts), or bruising easily. Children with leukemia may also experience infections resistant to appropriate medication, high fevers, and bone pains. If the cancer cells spread to other organs, the child may have swelling of the abdomen because of an enlarged spleen or liver, swollen lymph nodes, trouble breathing, coughing, loss of appetite and weight loss. When the leukemia spreads out of the bone marrow and into the central nervous system headaches, trouble concentrating, seizures, vomiting, blurred vision and trouble with balance may occur. Children with AML may also develop swollen, bleeding, painful gums and a rash. The physician normally will obtain a thorough medical history and focus on the child's lymph nodes, the eyes and the mouth. A variety of screening tests are used for diagnosis that range from blood tests, bone marrow samples, spinal tap, and a lymph node biopsy. Imaging tests used include chest x-rays, computed tomography (CT) scans, magnetic resonance imaging (MRI) scan, gallium scan and bone scan.

Treatment

Treatment of childhood leukemia varies depending on the type of cancer, risk group, and whether or not an infection is present at diagnosis. If a child is ill or becomes ill during treatment, the infection must be cured before treatment for the leukemia can begin, or continue. Radiation therapy is one form of treatment used for leukemia. This involves the use of high-energy radiation to target and kill the cancerous cells. Chemotherapy, the most common treatment, uses several different medications to kill the abnormal blood cells. Bone marrow transplants and peripheral blood stem cell transplants are effective with some forms of leukemia when chemotherapy is insufficient. These transplants allow for a higher dosage of chemotherapy to destroy the bone marrow, the stem cells are then used to replace the bone marrow and help form new, healthy blood cells. Clinical trials testing new medications or forms of treatment can also be found. These trials are available to those children who qualify for them, but there are no guarantees as to whether or not the treatment will work.

Possible Side Effects of Treatment

One of the most common is an increased risk of infection – viral, bacterial or fungal. Some side effects do not appear until months or even years after treatment is concluded. Some of these include damage to the lungs from radiation treatment, thyroid problems, infertility and impaired bone growth. Additionally, patients who have received a bone marrow transplant may get graft-versus-host-disease which is the result of the donor immune system attacking the host.

After Treatment Ends

Following treatment, the child will continue to meet with his or her oncologist for up to 5 years. These check-ups consist of monitoring the signs of the cancer returning, examining the effects of therapy, and looking for long term and late effects of the cancer. Regular visits to the child's physician are also imperative to conduct yearly physical examinations.

Relevance to Childhood Development

A diagnosis of leukemia in a child is difficult for the child and the entire family. It is important that parents ask the doctors questions that can help clarify the process and what will happen to the child. Many different emotions arise in a family when a loved one has been diagnosed with

cancer. The child will experience a variety of emotions, including anger, fear, guilt, anxiety, and sadness. Each child handles the situation differently. While only the child carries the diagnosis, the family is impacted as a whole. While in treatment, it is helpful for the family and child to have counseling to help deal with these emotions.

Not only is a child's emotional state impacted by cancer, but also the routine of everyday living. Depending on the type and risk group of the cancer, the child may have to spend several weeks at a time in a hospital for tests and treatment, separated from his or her siblings and friends and away from school for long periods of time. In addition the child may not be strong or healthy enough to perform the regular physical activities of children. Since the child's immune system is also impacted, the entire family now is organized around taking care of the diagnosed child. Siblings may feel neglected and conflicting emotions may arise. The diagnosed child who is no longer able to do normal play and school is forced to deal with more adult emotions prematurely. Frequently, these children try to protect their parents from worrying and may not share their emotions.

Once a child is in remission from leukemia, it is important to watch for some potential long-term and late effects that can result from treatment. Some of the factors to consider are: the overall health of the child, gender, age at time of treatment, type of cancer, and duration of treatment. These effects can be psychological, physical, or cognitive. Learning disabilities may develop either during treatment or several years later. Difficulty with mathematics, spatial relationships, problem solving, attention span, as well as difficulties with fine motor coordination are not uncommon. Some physical effects include constant fatigue, growth delays, thyroid dysfunction, hearing loss, or developing a second form of cancer. Finally, the child may report changes in mood after treatment is concluded. Posttraumatic stress disorder has been found in child survivors of leukemia. An additional psychological complication results if the child is pronounced in remission but has to continue taking medications and being monitored. Medication and treatment compliance issues may result during as an additional challenge to parents especially during the teenage years.

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Childhood Onset Schizophrenia

▶Childhood Schizophrenia

Childhood Psychosis

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Synonyms

Dementia infantiles; Dementia praecossima; Disintegrative psychosis; Gross impairment in reality testing; Insanity of early life; Loss of ego boundaries

Definition

The term childhood psychosis (deriving from the Greek ψυχή "psyche," for soul or mind and -οσις "-osis," for abnormal condition) describes an abnormal condition of the mind which is characterized by disruptions in thinking and it accompanied by delusions (Definition 1: false beliefs that typically involve a misinterpretation of perceptions or experiences) and hallucinations (Definition 2: hallucinations may occur in any sensory modality (i.e., auditory, visual etc.). Auditory hallucinations are the most common and they are experienced as voices that are perceived as distinct from the individual's own thoughts.) with the hallucinations occurring without insight into their pathological nature [1].

Description

Historically, the definition of psychosis in children has been surrounded by vagueness, confusion and debate primarily because of the developmentally appropriate role of imagination in the typically developing child. Childhood Psychosis was originally conceptualized as part of the spectrum of the Pervasive Developmental Disorders. Gradually, by 1980 some degree of consensus was reached that the essential features of Psychosis hold across age.

In the most recent revision of *Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision (DSM-IV-TR)*, the definitions and diagnostic features of psychosis do not differ across children, adolescents and adults. These symptoms include disorganized or disturbed thought form and thought content, disorganized speech, disorganized or catatonic behavior, flat affect, poverty of speech and lack of goal directed behavior [1].

A psychotic symptom, or clusters of symptoms are connected to a specific disorder as defined by a certain number of symptoms occurring over a specific duration of time with demonstrated impairment. Delusions (false beliefs) and prominent hallucinations (erroneous perceptions) are usually considered as the basis of diagnosis of psychosis [1].

The diagnosis of childhood psychosis remains an unresolved ongoing debate. In contrast to the diagnosis of adult psychosis which is relatively reliable since its symptoms and phenomenology are well established, in children and particularly the younger ones the diagnosis is elusive. Children in clinic as well as nonclinic populations report seeing ghosts or shapes or hearing voices and such hallucinations often do not constitute diagnostic features of psychosis. The developmentally appropriate intrusions of fantasy for the young children along with the developing cognitive abilities make the diagnosis difficult to make and often inaccurate.

Phenomenology

Childhood-Onset Schizophrenia in line to Adulthood Onset Schizophrenia is characterized by positive symptoms (that are present and should not be) and negative symptoms (that are not present and should be) [1]. Positive symptoms in children include gross disturbance of thought process or thought content, whereas delusions most possibly appear (or become apparent) with increasing age [2]. Negative symptoms include flat affect, and paucity of speech and thought [3]. Younger children with Childhood-Onset Schizophrenia are considered to have less delusions and catatonic symptoms, but they display hallucinations, disordered thought process and flattened affect [4].

Schizoaffective disorder is characterized by the positive and negative symptoms of schizophrenia as well as symptoms of a Major Depressive Episode, a Manic Episode, or a Mixed Episode [1]. These symptoms often make the diagnosis cumbersome. Especially in the initial stages of Schizoaffective Disorder in children mood symptoms may overshadow the existence of psychotic symptoms [2]. According to *DSM-IV-TR*, the phase of the illness with psychotic symptoms only must last at least for 2 weeks to distinguish Schizoaffective Disorder from a mood disorder with psychotic features. During these 2 weeks mood symptoms may be present but they are not prominent. Often it is difficult to make a determination of where to draw the line of *non- prominent* mood symptoms. For an accurate diagnosis repeated observations and multiple sources of information are necessitated [1].

The diagnosis of Psychotic Disorder Not Otherwise Specified includes psychotic symptoms for which there is not enough information to make a specific psychotic diagnosis, for which there is conflicting information or do not meet full criteria for a specific psychotic disorder [1]. The validity of Psychotic Disorder Not Otherwise Specified has been questioned and the evidence is still inconclusive.

Prevalence

The prevalence of childhood psychosis is not yet determined. Sparse epidemiological data suggest that pediatric psychosis is rare. Schizophrenia with onset during middle to late adolescence is reported to be in the range of 0.5–1.5% [1] Childhood-Onset Schizophrenia is reported to be no more than 1% [5]. With respect to ethnic origin certain population groups, for instance second generation African Caribbean's living in UK have been reported to have a far higher incidence [1]. However, the data are mixed any they may reflect biases deriving on reliance from hospitals. Further, birth cohort studies showed several geographical and historical variations in prevalence. For instance, higher risk has been reported for urban-born individuals versus rural-born individuals. Also lower prevalence has been reported for later-born versus earlier born birth cohorts [1]. The prevalence of Psychotic Disorder Not Otherwise Specified in children is hard to determine due to the vagueness of the term and the surrounded controversy over its validity.

Associated Features

Associated features of Childhood Psychosis are not yet well examined by empirical investigations. A line of evidence suggests that Childhood-Onset Schizophrenia is often associated with gross and fine motor delays, hypotonia, poor coordination, sensory integration difficulties, and significant delays and dysfunctions in language development [6] that indicate abnormal developmental of language related processes. Children with schizophrenia have also been reported to show features that are often linked with Pervasive Developmental Disorders. This symptomatology includes stereotypic behavior, such as hand flapping, preservative smelling and touching [2]. Further subsets of children with Childhood-Onset Schizophrenia

have been reported to show features associated with Attention Deficit Hyperactivity Disorder such as attention problems, distractibility, and other dysfunctions of executive functioning [7]. In addition, children with Childhood-Onset Schizophrenia score lower on IQ tests relative to the typically developing children [8]. However, neurocognitive studies suggest that these lower IQ scores may reflect primarily neurocognitive deficits [9]. Children with Childhood-Onset Schizophrenia have also shown neurobiological abnormalities such as reduced volume of the brain (frontal, temporal-limbic, thalamus, cerebellum), enlarged ventricles, altered neuronal connections, reduced brain activity, low reaction of autonomic nervous system and neurotransmitter dysfunction (dopamine, serotonin, GABA, glutamate) [10].

Socioemotional disturbances such as withdrawal, isolation, ineptness, moodiness, flat affect and lack of social interest, are also quite common in children with schizophrenia [11]. Impaired communication also is a quite common feature of childhood onset schizophrenia.

Beyond the associated features of Childhood-Onset Schizophrenia a history of developmental delays and cognitive deficits (e.g. attention, learning, abstraction) is considered to be implicated in children with other psychotic disorders such as in children Psychotic Disorder Not Otherwise Specified [12]. The scarcity of the empirical evidence however does not allow conclusions to be drawn with greater confidence.

Differential Diagnoses

Misdiagnosis of psychotic symptomatology in children is common. For instance an acute onset manic episode may be mistaken for schizophrenia, as hallucinations and delusions may be present (usually mood congruent). Psychotic symptoms in children need to be differentiated against to obsessions related to Obsessive-Compulsive Disorder, anticipatory anxiety related to Anxiety Disorders, rumination related to Depression, perseverative thoughts related to developmental disorders, disorganized behavior related to Attention-Deficit/Hyperactivity Disorder (ADHD), disorganized speech related to a Communication Disorder [1]. Further, language deficits and cognitive deficits related to mental retardation may suggest psychosis in nonpsychotic children [2]. Furthermore, nonspecific symptoms, such as anxiety, distractibility, and irritability, may precede a psychotic symptom and confound the diagnosis.

Psychotic Disorder Not Otherwise Specified is utilized to encompass psychotic symptomatology that is not adequate for diagnosis of another psychotic disorder. Nonetheless, reliable diagnosis of psychosis during childhood at present remains cumbersome.

Developmental Course and Prognosis

Psychosis in children is seldom diagnosed before the age of 7 primarily due to the developmentally appropriate fantasy lives of children. While schizophrenia sometimes begins as an acute psychotic episode in young adults, it emerges gradually in children. It is often preceded by developmental disturbances, such as lags in motor and speech/language development. Most empirical investigations on prognosis of childhood psychosis show variable course. Full recovery is very uncommon. For most children, psychosis remains lifetime condition. Most children with psychosis will enter adult life and their condition will be characterized by exacerbations and remissions. Among those whose condition persists into adulthood some will show a steady symptomatology, while others will show progressive deterioration. Empirical studies have provided a series of factors that are associated with a better prognosis. These factors include associated mood disturbance, treatment with antipsychotic soon after onset, absence of structural brain abnormalities, and normal neurological functioning [1].

Etiology

The current knowledge about the etiology of psychotic disorders focus mostly on schizophrenia and evidence derives from adult samples with only scarce studies focusing on child and adolescent samples. Most of these studies provide evidence that there is no single definite etiology of schizophrenia. The preponderance of evidence suggests that Childhood Schizophrenia evolves from a genetic predisposition, a prenatal insult to the developing brain, and stressful life events. The role of genetics has long been established. First-degree relatives of children with schizophrenia have a higher prevalence rate of schizophrenia and schizophrenia spectrum disorders. The risk of schizophrenia increases from 1% with no family history of the condition, to 10% if a first degree relative has it, to 50% if an identical twin has it. Twin data show higher concordance for identical rather than for fraternal twins Identical twins are reported to have a concordance of 45–55% while fraternal twins are reported to have a concordance of 13–17% [13]. Further to the genetic predisposition, prenatal and birth complications have been implicated in schizophrenia [12]. Prenatal adversities may include viral infections, such as maternal influenza in the second trimester [14], starvation, lack of oxygen at birth, and untreated blood type incompatibility. An increase in minor dysmorphic features indicate prenatal-onset problems. An increase in hypoxia-associated complications has been implicated in the odds of developing earlier-onset schizophrenia. Beyond genetic predisposition and

prenatal insults to the developing brain, psychosocial stress and family processes have been implicated in the development and worsening of psychotic symptomatology. For instance family communication characterized by dysfunctional thinking and attention and disturbed relationships has been linked to schizophrenia [10]. Despite the empirical investigations that determined a link between childhood psychoses and genetic predisposition, prenatal insults and stressful life events, the interaction of these factors and the possibly differentiated interplay of these factor across the life of the developing child is yet to be determined.

Treatment

To date, there are still no rigorous studies reporting on the efficacy of psychosocial treatments and pharmacotherapy specific to childhood psychosis. Early diagnosis is of crucial importance for the treatment of childhood psychoses. Children with this disorder must have a complete evaluation in order to develop a comprehensive individual treatment plan to address their difficulties.

Treatment strategies are typically recommended to focus on the clinical symptoms of the underlying disorder, while also addressing any comorbid disorders or psychosocial stressors. If there is evidence that delusions or hallucinations are the direct physiological consequence of a general medical condition then the first step is to address these conditions. For instance treating a partial complex seizure disorder, managing a metabolic imbalance, or treating an underlying infection. If it is deemed that there is no medical cause for the psychotic symptoms, then the next step is to ascertain whether the psychotic symptoms are secondary to another psychiatric condition such as Depression or Mania. If the psychotic symptoms are secondary to depression for instance the child will be prescribed with antidepressant (e.g., selective serotonergic reuptake inhibitors (flouxetine, paroxetine, sertraline, fluvoxamine, clomipramine). Often, the use of antipsychotic medications in addition to the use of antidepressants or mood stabilizers is indicated in psychosis that is secondary to depression. Medication can be helpful for many of the symptoms and problems identified [5]. Standard antipsychotic drugs appear to be effective for many schizophrenic children and adolescents. And the atypical drug clozapine is helpful for at least half of those who do not respond to other drugs. In a few cases psychotic symptoms seem to disappear entirely. However, children may be more vulnerable than adults to the toxic effects of clozapine and consequently many schizophrenic children have to discontinue its use because of the side effects (i.e., risk for seizures and serious blood abn) [5]. Newer antipsychotic drugs that may be safer and just as effective are now being tested.

While antipsychotic medications can be of value, they do not negate the need for psychosocial interventions individualized to each child's difficulties. These interventions typically include family psychoeducational approach encompassing education of the child and the parent about schizophrenia, enhancing strategies for coping with the disorder, training in family communication, training in problem solving and the provision of supportive psychotherapy during the recovery phase of the acute illness, and practical guidance of behavior [15]. Ongoing supportive psychosocial treatment helps patients with social and developmental crises. Clinicians also act as advocates with the parents for their patients with the schools and other social agencies to ensure that children with psychoses can continue their education while their specials needs will be addressed. Despite these treatment approaches that are typically generated to address psychosis in children to date there is a crucial need for methodologically rigorous controlled treatment studies that will be evaluating the efficacy and long-term outcome of the treatment approaches.

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Childhood Schizophrenia

Synonyms

Childhood onset schizophrenia; Early onset schizophrenia; Schizophrenia; Schizophrenia spectrum disorders

Description

Childhood schizophrenia is a rare, chronic, and disabling mental illness in which reality is interpreted as abnormality, indicating psychosis. Individuals with schizophrenia are often paranoid and or delusional, believing people are out to get them. Children with schizophrenia also can develop auditory (hearing) or visual (seeing) hallucinations. Schizophrenia in children affects approximately 1 out of 40,000 children, with the average age of onset around nine years old. Childhood schizophrenia is essentially the same as adult schizophrenia, except that the onset is before the child's 13th birthday. Schizophrenia is a brain based disease. There is no known cause for childhood onset schizophrenia, although there is thought to be a strong genetic component to the disorder, as there is with adult onset schizophrenia. Childhood schizophrenia is typically treated with medications called antipsychotic medications. These include pharmaceuticals such as chlorpromazine, haloperidol, risperidone, and quetiapine. There are also alternative therapies including cognitive behavioral therapy, nutritional supplements, and support groups. Currently there is no cure for schizophrenia.

Symptoms and Diagnosis

Symptoms of childhood schizophrenia are identical to symptoms of adult onset schizophrenia. Symptoms are often easy is miss and might be attributed to delayed developmental patterns, especially in early childhood. With time, the symptoms often worsen, making the emerging schizophrenia more readily apparent.

Symptoms include:

- Hallucinations, both auditory and visual
- Delusions
- Disorganized or catatonic behavior
- Withdrawal from social situations, including family and friends
- Flat affect
- Strange eating patterns
- Incoherent and erratic speech
- Failure to, or loss of interest in cleaning self
- Ritualistic behavior
- Quick agitation or disturbance
- Poor academic performance

Diagnosis is never easy with childhood onset schizophrenia. Typically, a child psychiatrist will want to monitor the child for at least 6 months. In addition to monitoring, other testing is also usually performed including, but not limited to, a physical exam, blood tests, psychological consultation and other testing considered to be relevant. Typically, the child psychiatrist will look to the Diagnostic and Statistical Manual of Mental Disorders (DSM) for specific criteria. According to the DSM, when diagnosing schizophrenia, whether it is childhood or adult onset, the following criteria should be met:

A. Characteristic Symptoms: two or more of the following symptoms should be present for a significant portion of a one month period:
   1. Delusions
   2. Hallucinations
   3. Incoherent, disorganized speech
   4. Grossly disorganized or catatonic behavior
   5. Negative symptoms such as a flat affect
B. Social Dysfunction: for a significant portion of the time, there should be a marked level of dysfunction regarding the child's academic performance and interpersonal interactions.
C. Duration: the symptoms should be present for at least six months.
D. Mood disorders should be ruled out.
E. Substance/general medical condition exclusion: symptoms indicating schizophrenia should not be the result of pharmaceuticals or a medical condition.

F. If the child has a disorder falling within the Autistic Spectrum, the diagnosis of Schizophrenia is given only if delusions or hallucinations are present for at least a month.

Childhood Schizophrenia and Families

A diagnosis of schizophrenia often takes a debilitating toll on families and caregivers. Although many have heard about schizophrenia, the only information many families have been privy to are exaggerated portrayals of schizophrenia through books and Hollywood movies. When a diagnosis of schizophrenia is given, it is normal for families to have a grieving period and experience periods of guilt. It is important for families to educate themselves about the symptoms, existing treatments, and options families have regarding their family member with schizophrenia. Many children with schizophrenia live in the family home; however other residential options are sometimes available, including residential hospitals and group homes, if the illness becomes unmanageable for the family.

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Childhood-Onset Diabetes

►Juvenile Diabetes

Child-Parent Relationship (CPR) Training

►Filial Therapy

Child-Rearing

►Baumrind's Parenting Styles
►Parenting Styles

Children of High Emotionality

►Temper Tantrums

Children's Depression Inventory (CDI)

►Beck Depression Inventory

Children's Embedded Figures Test

►Embedded Figures Test

Children's Global Functioning

►Global Assessment of Functioning Scales

Chloral Hydrate (Noctec)

►Depressants

Chlordiazepoxide

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Synonyms

Alpoxid; ATC therapeutic classification code N05BA02; CAS # 58-25-3; Chlordiazepoxide; 7chloro-2-methylamino-5-phenyl-3H-1,4-benzodiazepine-4-oxide; Defobin; DrugBank #APRD00682; Elenium; Klopoxid; Librelease; Libritabs; Librium; Limbitrol; Menrium; Novo-poxide; Poxidium; PubChem # 2712; Ro-0690; Roche-0690; Risolid

Definition

A benzodiazepine tranquilizer utilized in the treatment of anxiety disorders, possessing anxiolytic, muscle relaxant,

and hypnotic properties. The first drug of its class (benzodiazepines; e.g., Valium, Xanax, Ativan belong to the same class of drug and were invented after Librium) to be discovered and marketed by Roche. Librium is a controlled drug under various drug control laws (e.g., U.S. Schedule IV).

Description

Synthesized, misplaced, and then re-discovered in the laboratory of Roche chemist Dr. Leo H. Sternbach [1], Librium (chlordiazepoxide) was the first of a long line of benzodiazepine tranquilizers whose efficacy, utility, and frequent use preceded the collective entry of these pharmaceuticals into the modern lexicon. The benzodiazepines, a family of tranquilizing drugs used today to treat clinical anxiety, but prescribed more liberally before the risks of dependence became known, netted much profits and publicity for Rocheand the competition's products, but eventually triggered a public backlash among casual users of the drugs, who eventually voiced their dramatic tales of prolonged withdrawal tothe U.S. Senate.

Librium's re-discovery among Sternbach's laboratory papers, and the discovery that it possessed anxiolytic, muscle relaxant, and hypnotic properties, occurred in 1957. It wasFDA approved in 1960 [2], and soon outpaced what was then the leading tranquilizer, Miltown (meprobamate). 3 years later, Sternbach synthesized Valium.

In the U.S., Librium was written on 19.5 million prescriptions in 1974. It was prescribed for muscle pains, ulcers, and sundry diagnoses, in addition to anxiety, both clinical and normal, with such freedom that its skyrocketing popularity and public presence, along with Valium, led to increasingly ominous stories of painful drug withdrawal from some in the public, many of whomclaimed to have not been fully appraised of the possible risks when initially prescribed the drug. Media interest in these accounts of addiction and traumatic detoxification, inturn, led to law enforcement pressure to legislate the drug's use. By this time, in the early 1970s, both Librium and Valium were two of the top three most prescribed drugs in America [3]. Although Librium had its advocates among patients and doctors, accounts of tranquilizer withdrawal being "worse (more difficult) than" heroin or cocaine – especially since these drugs were touted as better than previous generations of tranquilizers, and, by the misinformed or uninformed, as relatively harmless pills – circulated through the media and by word-of-mouth.

Finally, on August 15, 1973 the newly-created DEA proposed adding Librium and Valiumto the Controlled Substances Act [3]. Previously, 7 years' worth of efforts at federal control of the drug failed, due, in part, to Roche's claims that the drug was not inherently dangerous, but only posed a risk to its users when it was misused.

This time, though, the legislation stuck as the public slowly realized that no drug is without its risks. "John R. Bartels Jr., acting administrator of the Drug Enforcement Administration [DEA], told a news conference that some people who have been issued valid prescriptions for the two drugs had been known to take 30 or 40 of the pills daily, rather than three or four as had been prescribed. 'Taking these pills is not like taking a glass of water,' he added," [3].

Today, Librium is available as a generic drug, though it is relatively seldom used – especially so in younger populations – compared to selective serotonin re-uptake inhibitors (SSRIs) (e.g., Prozac, Zoloft, Paxil) for anxiety disorders, and newer benzodiazepines (e.g., Xanax, Ativan) for short-term anxiety and panic disorder, the latter class of drugs mainly used in adults. Librium is indicated for the management of anxiety disorders or for short-term relief of anxiety, the withdrawal symptoms of acute alcoholism, and preoperative apprehension [4]. Its closely-related sister drug, Valium, has proven indispensable for treatment of anxiety and seizure disorders, and is listed on the World Health Organization's Model List of Essential Medicines [5], which are "selected with due regard to public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness" [6].

As with all tranquilizers, Librium should not be used in conjunction with alcohol or other depressants, which tend to have a synergistic effect on the central nervous system.

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Chlorpromazine

►Thorazine®

Choice Theory

►Reality Therapy

Chorea

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Definition

Chorea ("dance") is an abnormal involuntary movement disorder, one of a group of neurological disorders called dyskinesias.

Description

Chorea is characterized by brief, irregular contractions of various muscles, and often occurs with twisting and writhing movements called athetosis. Chorea is caused by over activity of dopamine in the areas of the brain that control movement and may appear in a variety of conditions. It is a primary feature of Huntington's disease, a progressive, hereditary movement disorder that normally appears in adults. Chorea is also commonly associated with Syndenham's chorea, which occurs as a complication of rheumatic fever in about 20% of children and adolescents with the infection. Chorea can also be induced by drugs such as antihistamines, anticonvulsants, and antipsychotics, and is associated with metabolic and endocrine disorders and vascular incidents.

Treatment and prognosis of chorea depend on its type and associated disease. Because Huntington's disease is ultimately fatal, treatment is supportive. Syndenham's chorea is treatable and curable with antibiotic drugs to treat the infection. Drug induced chorea can be treated by adjusting medication dosages. Chorea associated with metabolic and endocrine-related disorders are treated according to the causes of symptoms.

Relevance to Childhood Development

Chorea in children is most commonly associated with Syndeham's chorea, or side effects from medications. Both conditions are treatable, and do not pose any serious threat to normal childhood development with adequate medical care.

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Chortle

►Laughter

Christmas Disease

►Hemophilia

Chromosomal Abnormalities

►Birth Defects

Chronic Conditions

►Chronic Health Problems

Chronic Disease

►Chronic Health Problems

Chronic Grief

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Synonyms

Complicated grief

Definition

Grief that persists or progresses over a long period of time.

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Chronic Hair Pulling

►Trichotillomania

Chronic Health Conditions

►Chronic Health Problems

Chronic Health Problems

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Synonyms

Chronic conditions; Chronic disease; Chronic health conditions; Chronic illness; Chronic physical conditions; Disabling chronic conditions; People with special health care needs [14]

Definition

The US National Center for Health Statistics defined chronic disease and chronic illness as a disease lasting 3 months or longer [6].

Description

According to the Center for Disease Control and Prevention website, common chronic health problems in adults include cardiovascular disease, cancer, and diabetes. Cardiovascular disease includes heart disease, coronary heart disease, and stroke. In 2005, cardiovascular disease was the leading cause of death in the US. Cardiovascular disease can be prevented by monitoring blood pressure and cholesterol and by having a healthy lifestyle. Cancer was the second cause of death in the US in 2005 and many people are living with cancer. Cancer can be preventative and it is treatable. Certain cancers can be reduced by having a healthy lifestyle and cancer screening helps detect the cancer at an early stage which is better for treating the cancer. A healthy lifestyle involves exercise, eating foods with vitamins and nutrition, receiving vaccinations, avoid excessive direct sun light, and no smoking. Diabetes was the sixth cause of the death in the US in 2005. Diabetes is when the body has a lack of insulin or when the body cannot use insulin. The main types of diabetes are type 1, type 2, prediabetes, and gestational. Diabetes can be preventable and controlled, but if it is not controlled it can lead to amputations, blindness, and kidney failure. The Center for Disease Control and Prevention is funding many programs to help prevent the chronic health problems in the US [5].

According to Torpy et al. [13], common chronic health problems in children include asthma, cystic fibrosis, diabetes, obesity, malnutrition, development disabilities such as attention-deficit/hyperactivity disorder (ADHD) and autism, cerebral palsy, and mental illness. According to Perrin et al. [12], chronic health problems that are on the rise in children include obesity, asthma, and attention-deficit/hyperactivity disorder (ADHD).

The Mayo Clinic Staff [11] and Perrin et al. [12] defined obesity in children as children with a Body Mass Index (BMI) of 95th percentile or above in regard to children with the same age and gender. Body Mass Index (BMI) is calculated by dividing the child's weight in kilograms by the square of the child's height in meters [7]. As seen in the Mayo Clinic website, overweight children are considered children with a BMI between 85th percentile and 94th percentile. According to Perrin et al., "obesity now affect at least 18% of children and adolescents, increasing from approximately 5% in 1971–1974" (p. 2756).

Childhood obesity has been linked to medical and psychological/emotional problems such as:

- Low self-esteem
- Eating disorders such as binge eating disorder and bulimia nervosa
- Depression

- Body dissatisfaction
- Behavior problems
- Sleep disorders
- Medical problems such as adult obesity, type 2 diabetes, skin infections, high blood pressure, asthma, liver disorders, metabolic syndrome
- Depression

Adapted from [1, 8, 11].

The Mayo Clinic Staff [10] defined asthma as the inflammation of the airways making the airways excessively sensitive causing either coughing, wheezing or breathing problems. According to Perrin et al. [12], "asthma is now estimated at almost 9% among children and adolescent in the US, doubling since the 1980s" (p. 2756). Children with asthma have been associated with medical and psychological/emotional problems such as:

- Psychological and social difficulties
- Trouble sleeping due to coughing, wheezing or breathing problems
- Coughing, wheezing or breathing problems
- Chest tightness
- Limited physical activity/exercise
- Medical expenses for medications

Modified from [9, 10, 15].

ADHD is associated with symptoms such as inattention, hyperactivity, and impulsivity and in childhood it is considered the most common neurobehavioral disorder [2–4]. ADHD is diagnosed by the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) [2–4]. In school-aged children, the percentage of children with ADHD rages from 4% to 12% [2, 3].

Children with ADHD have been linked to medical and psychological/emotional problems such as:

- Difficulty in school
- Difficulty with family and peer relationships
- Low self-esteem

Adapted from [2, 3].

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Chronic Illness

►Chronic Health Problems

Chronic Lymphocytic Leukemia (CLL)

►Childhood Leukemia

Chronic Myelogenous Leukemia (CML)

►Childhood Leukemia

Chronic Physical Conditions

►Chronic Health Problems

Chuckle

►Laughter

Chums

►Friends
►Friendship
►Intimate Friend

Chunking

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Definition

Chunking is an organizational process, since it combines two or more pieces of information. Chunking can organize the information in a variety of ways. For example, consider again the nine-digit string of numbers 6 3 1 9 8 0 2 5 7. One way of chunking this string is to group into three groups of three digits each. Another organizational strategy is to impose rhythm, or melody, to the numbers [1]. One can also organize the digits by attaching meaning to them-a process where your retrieve information that has been stored before in long-term memory.

Description

When studying for tests, students are often required to remember a great deal of material. This poses difficulties for those with learning or intellectual disabilities, who may have memory problems. A strategy which benefits a student, which helps them remember important content for tests. Chunking: you study a chapter, try to recall five to seven key items. These key thoughts help trigger recall of more significant details.

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Cibalith-S

Synonyms

Carbolith; Duralith; Eskalith; Lithane; Lithium; Lithizine; Lithobid; Lithonate; Lithotabs

Definition

Cibalith-S contains lithium, a naturally occurring chemical used in the treatment of mania in patients with bipolar disorder.

Bipolar patients experience fluctuations in their mood which may include episodes of mania and depression. Cibalith-S is commonly used to reduce the frequency and intensity of mania commonly associated in those with Bipolar disorder. It is believed that Cibalith-S affects the transportation of sodium cells and it may also cause a change in catecholamines. Common side effects of this medication may include nausea, becoming thirsty and urination. Lithium toxicity is a common problem. Therefore, patients taking this medication must have constant monitoring.

Citizenship

►Social Responsibility

Clark, Kenneth Bancroft

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Life Dates

(1914–2005)

Introduction

Kenneth Bancroft Clark was a famous African-American psychologist who is best known for conducting the "doll studies," which examined the racial identity and self-concept of African-American children in the 1940s and 1950s [5]. His research findings were prominent in the discussion of the negative effects of racial segregation in the public schools and in society in general.

Educational Information

Kenneth Clark earned a bachelor's degree from Howard University and his doctoral degree from Columbia University in 1940. He served as a faculty member at the City College of New York throughout the duration of his career, and also served as a visiting professor at Columbia University, the University of California Berkeley, and Harvard University. Together with his wife Mamie Phipps Clark, he opened the Northside Center for Child Development in Harlem, which provided much needed social and mental health services to the Harlem community (Benjamin, 2007).

Accomplishments

Along with his wife, Mamie Phipps Clark, Kenneth Clark conducted a number of studies, commonly referred to as the "doll studies," that helped to establish the negative effects of racial segregation in public schools on the self-concept and personality development of African-American children. This research was cited in the arguments for the 1954 U.S. Supreme Court case *Brown* vs. *Board of Education* case, which outlawed the practice of racial segregation in public schools.

In the "doll studies", Clark examined the reactions of black children when presented with dolls of various skin colors (light, medium, dark) to play with [2]. In analyzing the responses of the black children, Clark found that the children had developed a preference for the light (or white) dolls and negative attitudes towards the dark (or black) dolls. These responses were interpreted as evidence of the negative effects of racial segregation and prejudice in the 1930s and 1940s on the self-concept and personality development of black children.

Benjamin and Crouse [1] assert that Clark's studies are some of the most significant in the history of psychology because it marked the first time that social science research was used in the reasoning for a Supreme Court decision. They suggest that this decision validated psychological research as an appropriate foundation for issues related to public policy. A summary of the relevant research that was written by Clark was cited in a footnote of the decision as supporting evidence that segregated schools were harmful to black children [4].

In addition to his prominent work as a researcher, Kenneth Clark was active in the American Psychological Association, serving as the first African-American president of the association in 1971. He also was a prominent spokesman on issues of race, prejudice, and discrimination; he was appointed by President Lyndon B. Johnson to serve on the Kerner Commission, which examined the possible influences on the urban riots of the 1960s [4].

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Classical Autism

▶Autism

Classical Conditioning

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Synonyms

Conditioning; Pavlovian or respondent conditioning

Definition

Classical conditioning is a type of learning where an individual learns to produce an involuntary physiological or emotional response as a result of the presentation of neutral stimulus repeatedly paired with an unconditioned stimulus.

Description

Ivan Pavlov, a Russian physiologist, received the Nobel Prize for his research on the digestion. As he was studying the digestive process in canines he realized that dogs began to salivate when the lab attendants walked into the room and before the dogs received their food. Pavlov originally used the term "psychic secretions" to explain that the salivation was due to the physiological power of

the digestive system through nervous input. The secretions were considered to be a reflex mechanism of psychic operations but Pavlov continued his experimentations and was eventually able to provide support that the "psychic secretions" were actually reflexes. Pavlov continued to conduct experiments that would eventually support his hypothesis of conditioned reflexes. Pavlov had the desire to prove that the conditioned reflexes were elicited responses that could be controlled and manipulated through the pairing of two previously unrelated stimuli. Driven to verify his theory of conditioned reflexes, Pavlov created his now well-known research in which he repeatedly paired a bell with the food being give to research dogs. The dogs in his research eventually displayed an increase in salivation at the sound of the bell despite the fact that the food was no longer being presented. Pavlov noted that the dogs were not only responding to the biological necessity of hunger but they were also attempting to satisfy the newly conditioned need developed by learning.

At the core of classical conditioning are the basic tenets of the concept: Unconditioned stimulus (UCS), unconditioned response (UCR), conditioned stimulus (CS), and conditioned response (CR). The unconditioned stimulus is an object or event that automatically elicits an unlearned physiological or emotional response. The unconditioned response is the unlearned physiological or emotional response caused by the UCS. The conditioned stimulus is a neutral stimulus that when paired with the UCS causes an automatic response. The conditioned response is the learned physiological or emotional response caused by the CS. Pavlov demonstrated that classical conditioning typically occurs when two stimuli are presented at approximately the same time and is most likely to occur when the CS is presented just before the UCS so that associations can be made.

Following the experimentation on dogs and other animals, Pavlov and subsequent researchers began to study the application of classical conditioning on humans. Pavlov's research has been valuable for the treatment for insomnia, chemical dependency, dietary issues, anxiety, and a variety of other human disorders. It is also noted that classical conditioning has been used in academic settings as well as in the advertisement field.

Relevance to Childhood Development

Classical conditioning can be used to explain how children learn a variety of automatic physiological and emotional responses. Children can develop dislikes for foods, darkness, a school subject, and even school in general. In some instances, children may fear school (CS) because of a previously negative experience such as being yelled at by the teacher, being punished for speaking out in class, being ridiculed by classmates, or being reprimanded for a poor grade. School then becomes associated with these negative experiences thus learning to fear (CR).

To alleviate children's fear of school or any other negative emotions, teachers should introduce the academic subject manner in a positive climate and associate it with positive emotions. To elicit positive emotions, teachers can provide students with a safe and orderly environment. When questioning students, allow students to share their opinions and make them feel safe. This can be done by asking open-ended questions. By using these strategies, children may associate positive emotions with the class and with school.

Making association is the basis to learning in classical conditioning.

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Classroom Climate

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Synonyms

Classroom environment; Educational environment; School climate; Social environment; Teacher student relationship

Definition

There is a multiplicity of definitions for classroom climates that are quite varied and include a range in emphasis from the study of just one variable too many variables that make up a classroom environment. Generally the classroom climate is considered that milieu that consists of the interactions of the educational, psychological, social, cognitive, organizational, and physical variables that impact how students learn and function.

Description

The classroom climate is a conglomeration of many variables. Some of these variables have been examined in isolation in order to show any distinct impact they may have on students and/or teachers while the interaction effects on the classroom climate of two or more variables have also been studied. The study of classroom and school environments had its roots in the early study of organizational climates in the business world [1] and through initial work on perceptions of the classroom environment [13]. These early studies produced an emphasis on the measurement of environments that has strongly influenced the study of classroom climate. A number of instruments have been developed and used to measure the classroom climate. These instruments usually require that a teacher, student, parent, or some more "objective" individual complete the scale to determine what aspects of the climate are more effective than others. Some examples of the instruments used include My Class Inventory [5]; the Classroom Environment Scale [5]; the Learning Environment Inventory [5]; the Individualized Classroom Environment Questionnaire and the Modified Classroom Climate Inventory [5]; The Classroom Environment Questionnaire [15]; The Children's Classroom Environment Scale [7]; the Barclay Classroom Assessment System [2]; and the Inventory of School Climate-Student [4]. Others scales and methods for measurement are informal and are often developed specifically for the purpose of a particular classroom or school (see Freiberg's book [6]).

The many components examined to determine the impact on and the constitutions of the classroom climate are listed below as general categories most often seen in the literature. It should be noted that this list specifies those variables related to classroom climate as opposed to school environment. Assessment of the components of the school environment has some distinctive differences from the study of the classroom climate and the two are often considered separately in terms of their impact on students. Whether they should always be studied separately is somewhat controversial as some researchers believe that the confluence of the fields may be just as important as the impact of each separate area [5].

Teacher-Student Relationships

This area would include examination of variables such as positive emotional experiences; degree of positive teacher support; types of personal/supportive language used with students; students' perceptions of teachers' emotional support; sense of belonging; teachers' tolerance levels (as well as students' perceptions of teachers' tolerance); and student shared decision making.

Approaches to Pedagogy

These approaches determine the type of instructional style being used and assess the impact on climate and various student outcomes. Examples here would include authority versus democratic approaches to instruction; invitational versus moral educational practices; cooperative versus competitive structures; authority-supportive motivational teacher practices; formal versus informal learning structures; whole-group versus individualized instruction; explicit versus implicit rule structure for academics and face-to-face versus digital/virtual approaches [8].

Ecological Issues

The physical components of a classroom are considered an important part of the development of classroom climate and would include areas such as physical size of the classroom space; number of students in the class; air quality; lighting; acoustics; physical comfort; school subject; grade level; and physical arrangement of the room (e.g., furniture, organization of desks).

Impact on Various Groups

In this category the literature has examined how classroom climates effect and are created by issues related to gender, ethnicity, and disabilities, and the types of students that make up a class.

Student-to-Student Relationships

A classroom climate may have an impact on how students interact with each other and a climate may be developed based on the types of social interactions among students.

Behavior Management Practices

Although the above categories overlap with behavior management approaches (especially those involving teacher-student relationships), more specifically issues such as a teachers degree of conflict; emotional support with maladjusted behaviors in students; consistency of behavior management practices; rules and procedures; and clarity of goals are all important. Likewise, the types of student misbehaviors are important in their impact on classroom climate.

Student Self-Issues

Classroom climates can be developed by and have an impact on student "self-issues" such as motivation; self-efficacy; problem-solving; and social-emotional competence.

Relevance to Childhood Development

Fraser (5, p. 1) states that "…..(research presents) compelling evidence that the classroom environment is such

a potent determinant of student outcomes that it should not be ignored by those wishing to improve the effectiveness of schools." Much of the research on the impact of classroom climate establishes very detailed connections between climate variables and outcomes while others establish links between the quality of the climate and the effects on students, teachers, and the overall efficacy of the classroom. Although not comprehensive in its delineation of the impact of the classroom climate some of the major findings will be summarized here.

In terms of teacher-student relationships it seems clear that the stability of the relationship; the use of emotionally supportive language and practices; the provision of emotionally positive experiences; and the evidence of more tolerance with less conflict have positive impact on students. Some of the outcomes include greater academic productivity, higher student motivation, and more productive teacher-student relationships. Similarly, behavior management practices that are clear, consistent, tolerant, less punitive, and more emotionally supportive, evidence less aggression, fewer behavior problems, and more prosocial behaviors and create a classroom climate that is rated by students and teachers as being more positive and productive.

Approaches to pedagogy have been shown to have significant influence on the classroom climate. A combination of Moral and Invitational educational approaches produces classroom climates that are conducive to growth and encourage students to make decisions regarding right and wrong leading to more inviting and just classrooms [3]. Although benefits have been shown with both a competitive and cooperative approach, there are some suggestions that cooperative approaches to learning may lead to a more positive shared experience and better negotiation among students. An Autonomy-supportive motivational style of pedagogy appears to lead to greater self-determination and a stronger teacher-student relationship [14].

Ecological and social variables have also shown positive student outcomes. Class size, learning space size, acoustics and other physical variables help create a classroom environment that improves academic engagement; prosocial behaviors; student and teacher satisfaction; and overall learning [8]. In the area of social improvements, classroom climates have been found to be more productive when students improve in self-efficacy, problem-solving, and social-emotional competence [10]. Similarly, student-to-student relationships improve when the classroom climate is marked by evidence that teachers are giving high quality emotional support, respect, and evaluative feedback [12, 16]. Finally, it appears that teachers who understand equity/diversity issues create classrooms that are more equitable [9] and that student perceptions of classroom climate may be more influenced by the group of students in the classroom than by the teacher [11].

Understanding the multiplicity of variables involved in the constitution of a classroom climate is crucial to those working and consulting in the schools. Being able to manipulate many of the antecedent conditions inherent in the climate of a classroom may be more effective than trying to change student and teacher attributes that may be less malleable. Most certainly, one must also consider that a working knowledge of classroom climate could be beneficial in preventing problems related to behavior, academics, and relationships.

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Classroom Environment

►Classroom Climate

Classroom Integration

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Synonyms

Integrated education; Integrative classroom

Definition

Classroom integration refers to the process of providing age-appropriate and quality education for students with and without disabilities in a shared learning environment.

Description

Since the mid to late 1990s special education reforms have focused on ensuring that students with identified physical, emotional, behavioral, intellectual, and or academic disabilities have access to the same educational experiences as their non-disabled peers [3]. Classroom integration refers to the assimilation of students with disabilities into the general education classroom [1, 2]. Often the term classroom integration is used synonymously with the term inclusion. However, inclusion refers to the process of school-wide reforms to develop a learning community to meet the needs of all students [1–3].

In an integrative classroom, students with disabilities are provided access to the general curricula. Educators modify the curricula according to students' educational needs. Students with disabilities receive individualized educational interventions within the mainstream classroom. Additionally, an integrative classroom facilitates social interactions among students with disabilities and classmates without disabilities [2].

Studies investigating the efficacy of classroom integration in Western countries have shown inconclusive results [2]. Several studies have indicated that students with disabilities showed increases in academic achievement, task completion, and improvements transitioning to adulthood. Other studies have indicated that students without disabilities who receive instruction in an integrative classroom perform as well as students in a non-integrative setting [1]. However, the success of classroom integration varies across school districts and classrooms.

Classroom integration has been successful when instruction is provided through the collaboration of a general education instructor and a special education teacher. Also, Classroom integration has been successful when teachers receive training on ways to provide instruction to diverse learners, have access to necessary resources, such as alternative curricula, assistive technology, and materials, and are supported by administrators, therapists, and school personnel [1, 2].

Classroom integration is a practice increasing in popularity worldwide [3]. Yet, educators and advocates continue to debate the efficacy of classroom integration in meeting the needs of students with and without disabilities.

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Classroom Management

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The term classroom management refers to how the learning environment is structured and organized to optimize the on-task behavior and knowledge acquisition of students [1]. It is a term that involves the physical set-up of the room, strategies utilized by the teacher, activities given to students, monitoring of student behavior, and altering instructional practices when necessary.

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Classroom Modifications

►Accommodations, Classroom

Classwide Peer Tutoring

►Peer Tutoring

Cleaning

►Purging

Cleft

►Cleft Palate

Cleft Palate

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Synonyms

Cleft

Definition

Congenital anatomical defect which may be an overt or submucous, complete or incomplete, unilateral or bilateral opening in the floor of the nose which structure also serves as the floor of the mouth. Such defect allows for inappropriate communication between the nose and the mouth. The cleft may: exist in the soft palate, (i.e., muscle and/or epithelium), only; exist in the form of an isolated hard palate cleft, (i.e., bone, muscle and epithelium); or extend through both the hard and soft palates. In addition, a combination of clefts may present in a given individual. Clefts may also involve the primary palate, (i.e., anterior portion of the palate), and/or the secondary palate, (i.e., posterior portion of the palate).

Description

Overt cleft palate is an opening in bone, muscle and soft tissue of the roof of the mouth which structure also serves as the floor of the nose. A submucous cleft palate is a defect in bone and/or muscle, however, the soft tissues (i.e., epithelium and mucous membrane) are intact, resulting in a less than obvious defect. A complete cleft palate extends into the upper alveolar ridge, preventing proper eruption and alignment of the dentition, whereas an incomplete cleft palate does not.

A cleft of the primary palate results from a failure of the left and right nasal processes and the left and right maxillary prominences to fuse in midline at approximately 6 weeks of fetal age. A cleft of the secondary palate occurs during the 11–12 week of embryonic life due to a failure of the left and right palatine processes to fuse with the vomer bone and/or failure of the muscle and epithelium of the soft palate to fuse. A theory of post-fusion rupture has also been advanced as a possible explanation of clefting, however, the theory is not well-accepted. Cleft palate may be associated with other midline defects such as heart and urogenital defects and is often associated with cleft lip. Cleft palate is associated with most cases of Pierre Robin Sequence. In addition, three hundred and fifty or more syndromes involve cleft palate, some of the more common being velocardiofacial syndrome, Van der Woude syndrome, Stickler syndrome, Apert syndrome, Crouzon syndrome, and Treacher Collins Syndrome, also known as mandibulofacial dysostosis [7]. Additionally, cleft palate defect may also occur in the absence of other anomalies. In the absence of genetic or syndromic-associated cleft palate, prenatal maternal exposure to teratogens has been offered as an explanation for the defect.

Overall incidence of cleft palate in isolation ranges from 1 in 2,500 to 1 in 3,000 live births. Incidence for cleft lip with or without cleft palate is significantly higher at 1 in 250 to 1 in 1,000 births. Incidence is higher in females for cleft palate alone and males demonstrate a somewhat higher incidence of cleft lip with or without cleft palate. Whereas cleft lip, in isolation, is more common in Asians and Native Americans than in Caucasians, and least common in blacks, cleft palate alone is equally distributed amongst Asians, Caucasians, Native Americans, and Blacks [7].

Children born with a cleft palate are at increased risk for upper respiratory and middle ear infections, dysphagia; and failure to thrive secondary to poor feeding. The ability to properly and safely feed a baby with a cleft palate can be greatly improved through positioning of the infant and use of the proper feeding apparatus. Infant mortality associated with cleft palate remains high in developing countries where a modicum of medical care is available [5].

Cleft palate is commonly closed at 9 months to 1 year of age in developed countries; however, much controversy remains as to the timing of palatal surgery. Debate continues as to the effect of early palatal closure on midfacial growth, however, the need to close the palate to allow for speech development has resulted in palatal closure during the first year of life for most non-syndromic children. The mucoperiosteum and mucosa overlying the bone is often excised, pulled over the defect and sutured closed. Cleft of the primary palate may be closed through alveolar bone grafting. Post-surgery care includes steps to prevent reopening the cleft until such time as it is healed. Foods, fingers, and instruments inserted into the mouth by the child during the post-surgical healing period can reopen a newly closed palate. Development of a palatal fistula following cleft repair is common and success of fistula repair may be dependent upon the closure technique employed [1]. A partial list of cleft palate associated surgeries includes: alveolar bone grafting; palatoplasty or palatorrhaphy; primary palatoplasty; pharyngeal flap or pharyngoplasty; and primary veloplasty. Numerous surgeries may be required, in particular when both the palate and lip are affected.

Malocclusion is commonly associated with cleft palate and involvement of dental professionals is extensive. The dental team treating cleft palate often includes orthodontists, prosthodontists, and oral surgeons. There will be extensive involvement of dental professionals throughout the childhood of most children born with a cleft palate.

Hearing loss is also commonly associated with cleft palate. Hearing loss ranges from otitis media induced conductive hearing loss to mixed conductive/sensorineural loss. Congenital sensorineural hearing loss and ear malformation are common in syndrome-associated cleft palate. The incidence of otitis media in babies with cleft palate is upwards of 90% [3] in contrast to 20% in non-cleft babies and sensorineural hearing loss in adulthood is not uncommon. Placement of pressure-equalization tubes or ventilation tubes in the tympanic membrane of children with clefts is common, but is not universally performed. Long-term follow up of children with clefts by otologists and audiologists is most often necessary.

Cleft palate is often associated with delayed and/or abnormal speech development. Problems include hypernasal speech resonance due to leakage of air into the nasal cavity. The nasal cavity is typically closed for production of all speech sounds except "m, n, and ng." In cases of cleft palate, air leaks into the nose for production of all speech sounds, both consonants and vowels. Following palatal closure surgery, continued hypernasal resonance, heard when vowel sounds are produced, may be indicative of a more pervasive issue, velopharyngeal insufficiency, inability of the soft palate and pharyngeal walls to act as a patent sphincter and separate the nasal from the oral cavity completely. This is not uncommon; velopharyngeal insufficiency following palatal closure is estimated to occur in 16% [6] to 49% [2] of cases depending upon the palatal repair technique employed. Further surgery, such as pharyngeal flap placement, may be indicated. Abnormal speech articulation is also commonly observed in children with cleft palate. Consonants normally produced at the back of the mouth, such as "k" and "g" may be produced more frontally, the pattern appropriately termed "fronting." In addition, consonant sounds may be produced through the nose resulting in inappropriate ejection of air through the nose, also appropriately termed "nasal emission." In less common cases, the inability to impound oral air pressure needed for consonant production due to leakage of air through the nose may result in compensatory impounding of air at the vocal cords. Such sounds are termed "glottals" and can be heard non-pathologically in the dialect of Cockney English. The speech–language pathologist is often involved in the care of children with clefts from birth for feeding issues and prevention of dysphagia, through early to late childhood for management of speech, and, less commonly, language issues.

Persons born with a cleft palate should be genetically counseled in adulthood as to their risk of defect transmission to offspring. The risk of genetic transmission of cleft palate ranges from 0.08% when no other family member is affected to greater than 30% when two siblings are affected [7]. Routine genetic testing of all persons with cleft palate is advocated by some [4].

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Client-Centered Therapy

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Synonyms

Humanistic therapy; Person-centered therapy; Rogerian psychotherapy; Unconditional positive regards for the client

Definition

Client-centered therapy is a modality in which client is the agent of change. The change process will take place when the therapist has created a safe, non-judgmental, and suitable therapeutic environment.

Description

Positive emotion has become increasingly important because research has shown positive feeling can enhancing human functioning [8]. It is this fundamental assumption that client-centered therapy is based. In other words, a warm, accepting, and genuine relationship will allow the client a deepening of experiences which promote integration of positive emotion and health. This ability to experience positive emotions in therapy session is a therapeutic goal; however, the ultimate goal is for the person to become fully functioning in which emotional processing is enhanced. Rogers [5] argued that client-centered therapy permits a person to become highly fluid, relativistic, genuine, and true to self. In therapy session, client-centered approach assumes that the client is highly motivated to become more balanced, mature, and self actualized; client is the main agent of change.

The term client-centered or person-centered was proposed by Carl R. Rogers in his theories of psychotherapy, group process, personality, development of pathology, education, marriage and interpersonal relationships [4, 6, 7]. There are more than 50 years of data supporting this model of positive emotional changes. For example, about half of the clients who received client-center therapy improve in their functioning [2]. These changes in psychological functioning are facilitated by the therapist's congruence, unconditional positive regard, and empathic understanding of the client's internal frame of reference, and nondirective attitude and stance [3].

In a typical psychotherapy session, the client communicates verbally to the therapist through narration and nature behaviors that mirror his or her inner state, life experiences, and current concerns and challenges. The person-center clinician listens empathically and attempts to understand client's thoughts and feelings from the client's perspective and referencing points. The therapist would reflect, summarize, and synthesize the situation in order to clarify and make sense of client's concerns [1]. It is through this empathic understanding response that the client is able to process and bring about positive changes in his or her life and become a fully functional individual.

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Clinical Art Therapy

▶Art Therapy

Clinical Child Psychology

▶Child Clinical Psychology

Clinical Health Psychology

►Health Psychology

Clinician

►Child and Family Therapist

Clique

►Peer Group

Clonazepam (Generic)

►Klonopin (Clonazepam)

Clonidine (Generic)

►Catapres® (Clonidine)

Close Friend

►Intimate Friend

Closed Head Injury

►Traumatic Brain Injury

Closed Head Trauma

►Traumatic Brain Injury

Clotting Disorders

►Thrombophilic Disorders

Clozapine (Generic)

►Clozaril® (Clozapine)

Clozaril® (Clozapine)

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Synonyms

Clozapine (generic)

Definition

Clozaril is an atypical antipsychotic drug and a tricyclic dibenzodiazepine derivative. Clozapine is the generic form of Clozaril.

Description

Clozaril is used to manage psychotic symptoms associated with schizophrenia or similar disorders when other treatments have failed. It is also used to treat recurrent suicidal behavior, agitation, bipolar disorder, and tremor in Parkinson's disease.

Some side effects of Clozaril may include: constipation, drooling, increased sweating, drowsiness or dizziness, sleep problems, nightmares, and weight gain. More serious side effects, which require immediate medical care include: shortness of breath, swelling of hands or feet, fever, weakness, sore throat, stiff muscles, confusion, irregular heartbeat, numbness/weakness, headache, confusion, problems with vision, speech, or balance, chest pain, wheezing, rapid breathing, pain or swelling in the legs, white patches or sores inside of mouth or lips, nausea, vomiting, loss of appetite, jaundice, or seizures.

Before taking Clozaril, patients should discuss previous medical history (especially concerning blood disorders, heart disease, irritable bowel syndrome, respiratory problems, diabetes, glaucoma, kidney and liver disease, obesity, and seizures) with a physician, and note any known allergies.

This review of Clozaril contains general information. For complete information about Clozaril and individual use, a health care professional should be consulted.

Relevance to Childhood Development

Clozaril's safety and effectiveness in pediatric patients have not been established. This medication typically is used

only when other treatments have failed because it can cause serious side effects such as agranulocytosis (impaired white blood cell count). Because of the risk of agranulocytosis, and other serious complications of the immune system, patients need to have blood tested before, and intermittently during, treatment with Clozaril.

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CLS

►Coffin-Lowry Syndrome

Clumsy Child Syndrome

►Developmental Coordination Disorder

Cocaine

Cocaine (benzoylmethylecgonine) is a crystalline alkaloid obtained from the leaves of the coca plant. The term comes from coca in addition to the alkaloid suffix - ine - forming the word cocaine. Cocaine acts as a stimulant in the central nervous system as well as an appetite suppressant. In the synapse it is a serotonin - norepinephrine - dopamine re-uptake inhibitor causing elation and a sense of heightened sensory awareness. Given its action in the synapse, cocaine is potentially addictive. The possession, cultivation and distribution of cocaine is illegal for non-medicinal and non-government sanctioned purposes in nearly every country worldwide. Despite this fact and harsh penalties for possession or distribution, the worldwide use of cocaine is widespread.

Coefficient of Correlation

►Correlation coefficient

Coercion Model

►Coercion Theory
►Parent Behavior

Coercion Theory

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Synonyms

Coercion model

Definition

Coercion Theory [1–3], developed by Gerald Patterson and colleagues at the Oregon Social Learning Center (OSLC), describes how aggressive and antisocial behaviors develop in children. Derived from extensive behavioral research on the moment-to-moment interactions in families, it specifies how ineffectual parental responses to problem behavior result in escalating aversive and aggressive behaviors in children in the short-term. It also describes how frequent repetitions of such coercive cycles result in a progressive worsening of aggressive behaviors in both variety and intensity coincident with lack of parental control over the aggression.

Description

The parent–child interactions that, over time, will result in increased likelihood of aggressive behaviors in the child while resulting in loss of parental control over aggressive

behaviors, and the learning principles that explain this, are outlined by the coercion model [3]. This process starts in a family where there is poor parenting in a cycle that may be described as follows. The parent gives a vague command requesting compliance from a toddler who is exhibiting some oppositional behavior. The parent repeats the ineffectual command while the toddler responds with more aversive or aggressive behaviors such as whining, crying or tantruming. The parent eventually gives in, withdraws, and does not follow through on the request. The toddler's aggressive behaviors cease while the parent obtains relief from the termination of the child's aggressive behaviors. These interactions are likely to perpetuate over time as the toddler's escalating aggressive behaviors are likely to reoccur as they terminate the parent's perceived aversive requests for compliance. At the same time the parent's acquiescence is likely to increase because it terminates the child's aversive behaviors. Strengthening of both sets of responses occur primarily through the process of negative reinforcement. Therefore, both parties actively "train" a repertoire of behaviors in the other [1, 2]. Positive reinforcement of behaviors may also occur as well, as initial parent responses may result in the child achieving a desired outcome. In families where this occurs, again due to ineffectual parenting, the child is likely to fail to develop prosocial skills and will increasingly use aversive and aggressive behaviors in interaction with others. Use of coercive behaviors becomes an entrenched style as they will also occur in other relationships such as those with siblings, peers and other adults [4].

Relevance to Childhood Development

Coercive cycles begin in toddlerhood when developmentally the child's behaviors become more challenging for parents due to autonomy seeking and independence coincident with more advanced motor, cognitive and language skills. In the face of poor or inconsistent discipline coercive cycles begin and become more entrenched over time as they typically co-occur with lack of reinforcement of adaptive and prosocial behaviors. According to coercion theory the coercive cycles are a primary mechanism producing aggressive behaviors. Coercion theory therefore describes the transactional processes that are a major precursor to a developmental trajectory of antisocial behavior.

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Coffin Syndrome

▶Coffin-Lowry Syndrome

Coffin-Lowry Syndrome

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Synonyms

CLS; Coffin syndrome; Mental retardation with osteocartilaginous abnormalities

Description

Coffin-Lowry syndrome was first identified as a distinct syndrome in 1966, when Coffin and colleagues noted two unrelated male patients with an X-linked disease marked by severe mental retardation (MR), short stature, skeletal deformities, and large, soft hands with tapering fingers [1]. Years later and unaware of Coffin's findings, Lowry made similar clinical observations of a large family containing ten affected members. In 1975, Temtamy recognized similarities between these two doctors' work and his own observations of eight comparable cases across three different families. Temtamy synthesized the symptoms into one syndrome, acknowledging the discoveries of both Coffin and Lowry [11].

The prevalence of Coffin-Lowry syndrome is not definitely known, but has been estimated to be about 1 in every 50,000 to 1 in every 100,000 people. However, this prevalence rate could be underestimated, due to the syndrome's resemblance of other disorders characterized by mental retardation and similar physical features, such as Williams syndrome, alpha-thalassemia with MR, Fragile X syndrome, lysosomal storage disease, and chromosomal anomalies [4, 12]. The syndrome equally affects families of European, Asian, and African origin.

Genetics

Genetic mapping has identified the p22.2 region of the X chromosome as the area responsible for Coffin-Lowry syndrome [12]. A gene corresponding to this interval of the X chromosome encodes the growth-factor-regulated protein kinase known as RSK2 (ribosomal protein S6 kinase-2), which is found in human tissues including the heart, pancreas, and skeletal muscle. The RSK2 gene is split into 22 exons and encodes a protein of 740 amino acids. The gene is activated in response to any of a series of cellular stimulations, including stimulation from insulin and growth factors, neurotransmitters and ultraviolet radiation [6, 12]. When activation occurs, RSKs regulate gene expression through phosphorylation of transcription factors, such as cAMP responsive element binding protein (CREB) [2, 6]. RSK genes have been implicated in several important cellular events including proliferation and differentiation, cell stress-response, and apoptosis. Mutations in the sequence of these genes therefore cause premature termination of translation and/or loss of phototransferase activity [14]. However, because the number and type of mutations and the associated symptoms observed in CLS are so heterogeneous, the precise effects of specific mutations remain unclear.

A significant proportion (70–80%) of individuals with CLS are probands, meaning there is no family history of the syndrome. Their mutations are considered *de novo* (novel), as compared to the other 20–30% of affected individuals who have more than one affected family member [2]. However, having a family member with an RSK2 mutation does not necessarily mean that another affected relative will have the same mutation [3].

The most recent research has reported more than 140 distinct mutations in the RSK2 gene [5, 9]. Other researchers have identified 128 mutations. Of these 37 (29%) were short insertion or deletion events in the coding sequence; 4 were large genomic deletions encompassing one to three exons; 26 (20%) were accounted for by splice alterations; 19 (15%) were nonsense mutations, and 42 (33%) were missense mutations [2]. Interestingly, 114 of those 128 mutations were found to be private mutations, occurring in only one family. This growing number of mutations, along with the absence of consistent relationships between specific mutations and severity of symptoms or expression of particular features, create difficulties when trying to systematically analyze the gene for CLS diagnosis using current techniques. Thus, many cases of Coffin-Lowry syndrome are diagnosed based strictly on the phenotypic presentation of the syndrome.

Diagnosis

Early diagnosis of Coffin-Lowry syndrome is necessary for appropriate management of the disease. Screening for ribosomal S6 protein kinase mutations and genetic counseling can help parents estimate and prepare for the severity of symptoms of their child. However, while RSK2 protein is readily detectable in cultured amniocytes, allowing for prenatal CLS screening, current genetic testing cannot detect female carriers because of random X activation. There are, however, physical signs observed during pregnancy that might suggest CLS short of genetic testing. These signs associated with CLS include: low intrauterine growth, excessive amniotic fluid, and reduced fetal movements before delivery (birth weight is usually normal) [12].

Physical Abnormalities

Typical adult male CLS patients are of short stature and have characteristic facial features such as a prominent forehead, hypertelorism, thick lips, prominent, low-set ears, and downward-slanting eyes. Dental anomalies are common and include a high, narrow palate, missing or irregular teeth, and malocclusion, Sleep apnea is a common problem when the combination of a large tongue and teeth, and small jaw occur in an individual, characterized by snoring and daytime fatigue. This has, however, been reduced when the tonsils are removed, or as the jaw shifts with age. Their large, puffy hands with tapering fingers are the most universal characteristic and are occasionally the basis for a clinician's diagnosis of CLS.

Skeletal abnormalities in CLS are common, severe, and tend to deteriorate progressively throughout life. Males have occasionally displayed hypotonia and hyperlaxity of joints before the first month. Though a delayed closure of the anterior fontanelle, or "soft spot," on the infant's head may not be observed until the age of 2, most skeletal abnormalities are not evident until after 2 years of age. The most probable early physical signs include a prominent forehead, a bulbous nose with anteverted nares, full upper lip and wide mouth, full forearms, tapered fingers, microcephaly, and possibly hearing deficits and sternal malformations.

Approximately 95% of patients are of short stature [2]. Final adult height is usually between the third and fifth percentile, or around 143 cm. However, a normal stature does not exclude a diagnosis of Coffin-Lowry syndrome [12]. Such short stature is mainly due to the spinal deformities that so frequently affect individuals with CLS. Narrow intervertebral spaces, congenital spinal stenosis, and scoliosis with dysplasia of vertebral bodies may be caused by associated ligamentous laxity and changes in the intervertebral disks [12]. A reported 80% of individuals

are affected by kyphosis or scoliosis, in which the front-to-back and side-to-side curvature of the spine is extreme and degenerative. These deformities often require corrective surgery, though determining when to have the procedure completed is a complicated issue. Typically, it is recommended that the spine not be adjusted until a person has reached puberty and the spine has undergone its growth spurt, but since individuals with CLS are often delayed in their developmental milestones, puberty may take longer to reach. Nonetheless, in many cases families have reported improvement of patients' conditions after surgery.

Brittle bones are also typical in Coffin-Lowry syndrome. In a series of experiments researchers identified one of the proteins activated by RSK2, called ATF4 [13]. They examined the effects of this protein on bone formation in cell cultures and mice. Their findings revealed that, like Coffin-Lowry patients, mice lacking RSK2 had shorter, less dense bones and bigger gaps between skull fragments at birth. Those mice lacking ATF4 had even more severe deformities, including thinner, fewer bone tissue strands called trabeculae. Following this discovery, bone-forming cells called osteoblasts were examined to determine why these deformities occurred. Findings suggested that cells lacking ATF4 are slower to differentiate and become mature osteoblast cells. In addition, these cells were unable or failed to produce sufficient Type 1 collagen, the main component of bones. This study has great implications for Coffin-Lowry, and seems to explain why the symptoms of the disease worsen over time. With less and less collagen being produced, the bone simply continues to degenerate more and more over time. This could mean, however, that corrections in the system could be encourage by something as simple as a diet rich in protein, giving hope to many affected individuals. Trials are still currently testing this theory.

Developmental Deficits and Delays

Diagnosis in childhood is more difficult compared to older patients, as most physical abnormalities are mild or unnoticeable at birth and throughout infancy. However, in the first few months growth retardations and delayed psychomotor development may become apparent [14]. Developmental milestones are often delayed. Sitting, crawling and walking take longer to master and, once developed, individuals may have an ataxic gait. Loss of strength and muscle mass is common, as well as progressive spasticity and even paraplegia, due to the calcification of the ligamenta flava and congenital spinal stenosis.

Speech delays are reported in nearly every single case of the syndrome. This is in part due to the frequency of hearing loss that occurs in many patients, but also may be caused or worsened by the severe malformation of the mouth and facial structures. It is estimated that about one third of those with CLS have significant deafness [12]. Hearing aids may be useful, but it is recommended that hearing tests be administered frequently starting at an early age, to promote language development capabilities.

Sensory integration issues also arise in early childhood. Children with CLS are noted to have trouble interpreting and organizing incoming sensory information, leading to further problems in development and behavior. For example, impairment in the tactile sensory system can cause sensitivity or aversion to touch, general irritability, and hyperactivity. Those with CLS are observed to engage in sudden "drop" episodes, which are thought to be non-epileptic and, instead, due to overstimulation of the senses such as a loud noise or an overly exciting situation.

Cognitive deficits are a common factor in Coffin-Lowry syndrome, though levels of impairment are variable and may be attributed to hydrocephaly and agenesis of the corpus callosum sometimes observed in those with CLS. Males are more likely to have moderate to profound mental retardation, with IQ scores ranging from 15 to 60, but clustering mainly in the severe range [8]. Females are often much less affected cognitively, and may appear to have normal levels of cognitive functioning and IQ, which can lead to a misdiagnosis of the individual.

Research on the range of cognitive impairments across unrelated families with the same missense mutation has shown no evidence for intellectual deterioration with age [10]. However, a distinct hierarchy of cognitive abilities has been detected across normal, to carrier, to affected individuals. Still, other findings suggest that the level of mental retardation may be influenced by the quality of care received [12]. Some reports show MR as being only moderate in those individuals who were evaluated as having been properly cared for and describe the acquisition of substantial oral communication, though this is frequently a challenging area for individuals with CLS.

Other Complications

Other complications may be present in Coffin-Lowry syndrome, including sensorineural deafness, seizures, drop episodes, and cardiac disease. Cardiac problems include mitral valve regurgitation, heart murmur, cardiomyopathy, endomyocardial fibroelastosis, and "sudden death" instances. The incidence of cardiomyopathy may be underestimated in CLS, as moderate forms of these conditions may go unnoticed by both the patient and tests such as echocardiography and myocardial biopsy [12].

Behavioral problems similar to those seen in autism and other development disorders have been occasionally reported in CLS cases such as repetitive behaviors (perseverance, echolalia), severe temper tantrums and emotional outbursts, especially when asked to shift activities (e.g., from a favorite game to some other activity). There is also a common disposition of disliking physical contact with others. Engagement in physical contact may evoke aggressive or self-injurious behavior from the individual with CLS, although, these behaviors are reported to be rare responses to physical contact. It is important to consider that some problem behaviors exhibited by those with CLS may be in response to underlying medical conditions such as stomach pain or infection as they are unable to communicate discomfort via speech. In general, however, individuals with CLS are said to have a pleasant personality.

Treatment

While strides have been made toward understanding the etiology and effects of Coffin-Lowry syndrome, there is no cure for the disease. Treatment can be symptomatic and supportive, and may include physical or speech therapy, and special educational programs. In some cases, medications have been used to lessen those symptoms commonly seen in other disorders. In particular, benzodiazapine drugs have been used as therapies for drop attacks, with variable success [7]. However, despite these treatments, the lifespan of individuals with CLS is on average, just 20 years.

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Cognitive Assessment System

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The Cognitive Assessment System (CAS; [3]) is a individually administered multidimensional test of intelligence based on the Planning, Attention, Simultaneous, and Successive (PASS) theory [1] (see ►PASS Theory). Twelve individual subtests (three per PASS Scale) are used to measure intelligence from a cognitive processing perspective for children and adolescents aged 5 to 18 years. The test is comprised of four scales that match the PASS abilities and a Full Scale score that represents overall ability. The Planning tests provide a novel problem-solving situation requiring self-regulation, flexible use of strategies, allocation of attention and memory, response inhibition, goal setting, and self-monitoring, and self-correction. The Attention tests require focused cognitive activity over time and resistance to distraction. The Simultaneous tests require the child to integrate stimuli into interrelated groups or a whole, typically using visual-spatial tests but also using verbal questions. Finally, the Successive tests require both the repetition of information in order and the comprehension of the sequence of verbal statements.

The CAS was standardized on a sample of 2,200 children aged 5–17 years who were representative of the

U.S. population at that time on a number of important demographic variables. The sample is a nationally representative, stratified sample based on gender, race, ethnicity, region, community setting, classroom placement, and parental education [3]. Information about the reliability and validity of the test is provided in the manual [3]. The CAS has been carefully studied since it was first published. There is considerable evidence that the test can be used to gain an understanding of how well the child thinks and learns, to uncover strengths and needs of children that can then be used for effective differential diagnosis, is particularly appropriate for assessment of minority children and adolescents, can be used internationally, and yield information that is useful for selection and design of interventions [2].

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Cognitive Control

►Executive Function
►Impulse Control

Cognitive Curiosity

►Curiosity

Cognitive Disabilities

►Developmental Disabilities

Cognitive Disequilibrium

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Jean Piaget's theory of cognitive development describes cognitive disequilibrium as a state of cognitive imbalance [1]. We experience such a state of imbalance when encountering information that requires us to develop new schema or modify existing schema (i.e., accommodate). Disequilibrium is often an uncomfortable state for individuals, thus we seek to quickly return to a state of equilibrium. If we encounter something in our environment that doesn't fit our existing schema, we may devote our mental energy to developing a new schema or adapting an existing schema. For example, a child learning how to tie her/his shoes may face a state of disequilibrium as he/she works to physically maneuver the laces while thinking through the steps as he/she tries to develop a new schema for shoe tying.

Another option we have when in a state of cognitive disequilibrium is to discount the information presented in the environment and instead leave our existing schema unaltered. A child may refuse to attempt the task of tying his/her shoe, thus not exerting the mental energy to accommodate new information.

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Cognitive Dissonance

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Definition

►Cognitive dissonance is an experience in which individual's encounter psychological discomfort when they simultaneously have thoughts that are in conflict with each other. Cognitive dissonance often serves as a motivational force as it often drives them to seek to reduce discomfort.

Description

Leon Festinger, a social psychologist, is the originator of this theory and presented it in his first book on the matter in 1957 [3]. Since then he has done more research on the matter and provided a foundation for later studies in social psychology. According to Festinger, individuals seek to have psychological consistency such that thoughts, beliefs, values and actions usually coincide and are

supported by each other. This experience is termed cognitive consonance and allows for mental equilibrium. Equilibrium, a condition in which there is balance, allows for harmony, and low levels of anxiety, discomfort, shame or guilt. Unconsciously individuals aim to function in this manner. Nonetheless, there are occasions in which thoughts that one has or accepts are not consistent with the framework of thoughts traditionally and consciously held by that individual. Such mental disequilibrium is referred to as cognitive dissonance and it leaves one seeking homeostasis. When a person becomes aware of these inconsistencies it is the moment in which he or she is experiencing cognitive dissonance. Psychologically, the individual seeks to have consonance. There are many ways in which the psyche attempts to reduce discomfort and bring this about. In this way cognitive dissonance serves as a motivational force as individuals seek to have internal consistency. These ways include, but are not limited to rationalization, justification, attitude change or trivialization. Cognitions are changed to fit the actual behavior. Cognitive dissonance is a regular occurrence and can often be used as a tool for growth. It can be a byproduct of learning, challenging cultural and societal beliefs and becoming aware of logical inconsistencies in ideas. Awareness of these inconsistencies is the first step in attempting to reduce psychological discomfort caused by cognitive dissonance.

Examples

A common example that can be used to exemplify this concept is one that pertains to race. One may consciously think that all people and races are equal. Previous thoughts and actions may be consistent with this. However, if one's child is getting married to someone from another race, there may be an experience in which this individual has an issue with this union whether verbalized or not. Psychological discomfort is experienced as the individual is aware that he or she has claimed to believe that all people are created equal, but experience a feeling of resistance in this event. In order to come to terms with this and return to a state of consonance, the individual may then attempt to change these thoughts so that they occur without conflict in the existing framework of their cognitions. The individual may realize the inherent conflict in his or her thoughts and dismiss misgivings about the union or justify it by saying that he or she is not racist, but is just concerned about how the couple is received socially. Similarly, one might say, "I love gay people," but want to reject their child to some degree when they tell them of the alternative lifestyle they intend to live.

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Cognitive Equilibrium

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Jean Piaget states that as humans, we have an innate desire to maintain a state of cognitive equilibrium, or cognitive balance [1]. We like it when we experience things in our world that fit our mental understanding of the world. To be in a state of cognitive equilibrium, our brains are assimilating information more than they are accommodating information.

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Cognitive Impairment

▶Mental Retardation
▶Mild Mental Retardation
▶Moderate Mental Retardation
▶Profound Mental Retardation
▶Severe Mental Retardation

Cognitive Psychology

▶Cognitive Theories

Cognitive Schemas

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Description

Jean Piaget's theory of cognitive development includes discussion of cognitive schemas, or mental representations. As infants, we are born with certain innate schemas, such as crying and sucking. As we encounter things in our environment, we develop additional schemas, such as babbling, crawling, etc. Infants quickly develop a schema for their caretaker(s). Schemas are the building blocks for knowledge acquisition [1]. Using this analogy, the building blocks increase in number as we learn new information. For example, a child learns how to write his/her name, thus adding a schema. The organization of the building blocks also become more complex as the brain matures and new knowledge is gained. A child who knows how to write his/her name also learns how to write additional words. Piaget describes the concepts of assimilation and accommodation to explain how schemas develop. Assimilation involves encountering something in the environment that fits into an already existing schema. For example, some children who lived through Hurricane Katrina now experience great psychological stress if there is a thunderstorm. Piaget would explain that the children have a schema for a destructive hurricane and when they encounter a situation that is similar, they assimilate the information, thus causing distress. Accommodation involves altering a schema or creating a new one. For example, learning that not every thunderstorm is a hurricane involves the process of accommodation.

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Cognitive Skills

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Synonyms

Learning skills; Thinking; Thoughts

Definition

Mental abilities needed to learn something http://www.learningrx.com/cognitive-skills-faq.htm

Description

Cognitive skills involve those strategies learners employee when encountering new material that is needed to be learned. Skills such as concentration, categorization, memorization and reasoning are important.

Some strategies to improve cognitive skills include teaching the child what specifically is different about one concept or idea from another. Further, helping children to differentiate characteristics such noticing the likeness but differences between a parrot and a chicken. Further, teaching children to create a visual image of the concept in their minds assists in strengthening cognitive skills. Often repeating aloud the concept, definition or characteristics of the materials to be learned assists in the development of cognitive skills. In addition, concentration is critical to the development of cognitive skills.

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Cognitive Strategies

▶Memory Strategies
▶Mnemonic Device

Cognitive Structure

▶Memorization

Cognitive Styles

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Synonyms

Learning styles; Thinking styles

Definition

"People's characteristic and typically preferred modes of processing information [5, p. 700]."

Description

As opposed to cognitive abilities, cognitive styles refer to "people's characteristic and typically preferred modes of processing information [5, p. 700]." There are a number of related terms that describe characteristics that are similar to cognitive styles, including learning styles, thinking styles, or information processing styles. Woolfolk [9] noted that educators tend to prefer the term "learning styles" while psychologists tend to prefer the term "cognitive styles." Although there is much overlap between the terms, educators tend to include a broader range of styles and preferences within the category of learning styles, while psychologists limit the term to styles that relate to differences in the ways that people process information.

Sternberg [7] describes cognitive styles as lying at the interface between cognition and personality. As indicators of cognition, they describe individual differences in how people use their cognitive abilities to solve problems and process information. As reflections of personality, cognitive styles refer to preferences for using cognitive abilities in certain ways. For example, some students may be more likely to process information by attending to the specific details, while other students may instead tend to focus on the overall picture. Witkin et al. [8] proposed a cognitive style called psychological differentiation that describes this tendency. According to this conception of cognitive style, people can be classified as either *field-dependent* or *field-independent*. People who are field-dependent have more difficulty picking out the hidden elements of a visual field than those who are field-independent. This difference may extend beyond simple visual perception to broader contexts, such as understanding social interactions or other problem-solving contexts [2].

Other examples of cognitive styles that have been proposed in the literature are Kagan's [3] conceptual tempo (reflective-impulsive) and Sternberg's theory of mental self-government (1997). Cognitive styles may help educators understand better how children learn and how they respond to different instructional strategies. For example, a student with an impulsive cognitive style may respond very quickly to questions, while a student with a reflective cognitive style may wait before responding. These individual differences may be important for teachers to consider when trying to understand the differing behaviors of students during instruction.

The concept of learning styles has been much more prominent in education than the concept of cognitive styles. Two very popular conceptions of styles are Dunn and Dunn's [1] Learning Styles (environmental, emotional, sociological, and physical), and Kolb's [4] Learning Styles (converging vs. diverging and assimilating vs. accommodating). Although intuitively attractive, the idea of learning styles has been controversial. Many of the proposed measures of styles have limited reliability and validity [6]. With regards to measures of learning styles, Woolfolk [9] suggested that it may be more accurate to call them learning preferences rather than learning styles. In general, research has been more supportive of the concept of cognitive styles, although they have not enjoyed the popularity of learning styles.

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Cognitive Testing

►Intelligence Testing

Cognitive Theories

Synonyms

Cognitive psychology; Cognitivism

Definition

Cognitive theories attempt to describe how people think. Specifically, the field of cognitive psychology is defined as the study of how people perceive, learn, remember, and think about information.

Description

Cognitive theory or cognitive psychology is concerned with a person's thought processes and attempts to understand human behavior by analyzing these thought processes. Cognitivism is the belief held by some psychologists that much of human behavior can be explained in terms of how people think.

Cognitive psychology emerged from the broader field of psychology in response to the ideas of structuralism, functionalism, and behaviorism. Structuralism is concerned with the structure or elements of the mind and attempts to analyze perceptions into their components, while functionalism seeks to understand what people do and why. Behaviorism focuses only on the relation between observable behavior and environmental events. Early cognitive psychologists including Karl Lashley, Donald Hebb, Noam Chomsky, and Ulric Neisser rejected the ideas of strict behaviorism and felt strongly that the mind and people's thoughts should be the focus of scientific research on human behavior.

The assumption underlying cognitive theories is that humans are logical beings that make sensible choices. Therefore, cognitive psychology focuses on studying and explaining how humans come to solve problems, process and retain information, and make decisions. "Information processing" is a commonly used description of the mental process, comparing the human mind to a computer.

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Cognitive Therapy

►Beck Therapy

Cognitive Therapy (CT)

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Definition

Cognitive Therapy (CT) is a type of psychotherapy first developed by Aaron Beck that focuses on replacing cognitive distortions with more rationale thinking in an attempt to positively affect both emotions and behavior in the patient.

Description

Cognitive Therapy (CT) is derived from Cognitive Theory, which were both first developed by Aaron T. Beck [1] and later expounded upon by his daughter Judith Beck [3]. It should also be noted that many theoretical as well as technical aspects of CT are highly similar to Rational Emotive Therapy (RET) that was developed simultaneously by Albert Ellis [4]. Some consider CT falling under the larger umbrella of psychotherapies known as Cognitive Behavioral Therapy (CBT) although CT is distinguished from CBT by its exclusive focus on cognitions as the key to positive therapeutic change in emotions and behavior.

CT is based on the "cognitive model" [3] that attempts to explain the cause of dysfunctional emotions and behavior. This model explains that in any individual's life, a triggering event or situation may activate a cognitive distortion. The consequences of this cognitive distortion are dysfunctional emotions and behaviors. For example, before taking a test in school, a person may think "I'm going to fail as usual." This thought then leads to a feeling of sadness and the person may give up studying for the test. In this example, the upcoming test is the triggering event, their thought of impending failure is the cognitive distortion, and their sadness and the termination of studying are emotional and behavioral consequences of the thought. The cornerstone of this model is understanding that negative emotions and behaviors are consequences of the distorted thinking, thus the focus of therapy is on replacing these cognitions presuming that positive emotional and behavioral change will follow. Beginning stages of CT emphasize the importance of the cognitive model and direct the therapist to explicitly teach and reinforce this model with the patient [3].

CT assumes that there are three levels of belief within an individual [3], which are automatic thoughts, intermediate beliefs, and core beliefs. Core beliefs tend to be global and encompass all or most aspects of a person, such as the belief of "I am generally a good person." On the other hand, someone suffering from depression might have the core belief of "I am a worthless person." Core beliefs are often below the level of daily consciousness however, and may manifest themselves as intermediate beliefs, which are rules or assumptions one holds for oneself. For example, "nothing ever goes right for me" would be a typical intermediate belief held by someone diagnosed with depression. Automatic thoughts, on the other hand, are the most specific and frequent thoughts experienced by people and relate to specific situations, such as "I am going to fail the test on Tuesday." CT attempts to examine and change these thought processes, often beginning with automatic

thoughts, then moving to more general intermediate beliefs, and finally working toward a dysfunctional core belief.

CT is a highly standardized type of psychotherapy, which is characterized by the development and use of an agenda during therapy as well as the use of a number of specific psychotherapy techniques [3]. These techniques, as well as the theory underlying them, are rather universal in that they are applicable to a variety of problems. One such technique, and a hallmark of CT, is the continual use of Dysfunctional Thought Records (DTR) both inside and outside of therapy. The DTR is used to log dysfunctional thinking and the consequential emotions and behaviors. Part of the DTR also allows the patient to provide a "rational response" [3] to the cognitive distortion that they are experiencing. After the patient replaces the cognitive distortion with this rational response, they then re-rate their emotions related to the triggering event. One of the goals of CT is for the therapist to train the patient to become their own therapist, thus avoiding the possibility of overdependence on the therapist and ensuring continued progress beyond therapy termination [1]. As such, the use of the DTR outside of, and beyond therapy, is critical.

There are several assumptions related to the provision of CT. First, CT acknowledges that early childhood experiences lay the foundation for one's beliefs and cognitive distortions, but CT focuses on cognitions as the most expedient way to positively affect emotions and behaviors in the patient. Secondly, CT relies on the patient to be able to identify their own thinking and rationally examine these thoughts in order to replace this dysfunctional thinking. This is a point of controversy, as Albert Ellis [4] did not believe that most children or adolescents held the prerequisite cognitive skills required for this type of therapy. Additionally, Aaron Beck has written very little on how therapists might apply CT to children as most of his work has been with adults. Recent research, however, has shown that children as young as five years old possess the basic cognitive skills needed to allow them to benefit from CT [5]. Because of the standardized methods and techniques used, CT has gained a large body of empirical evidence supporting its efficacy with a variety of problems and populations and continues to gain popularity in the field of psychology.

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Cognitive-Behavioral Play Therapy (CBPT)

▶Play-Group Therapy

Cognitive-Behavioral Therapy

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Definition

Cognitive-behavioral therapy (CBT) is a broad term covering a range of therapies that integrate cognitive and behavioral techniques.

Description

The term CBT is often also used as an umbrella term to cover many different variations of integrating behavioral and cognitive theories [11, 18] and applying those theories to effective intervention [9]. CBT has its earliest roots in behavioral theory and behavior therapy, and behavior therapy has continued to be shaped by many theoretical and empirical advances.

In his book, *Behaviorism* (1924), John B. Watson made the case that psychology should focus on observable and measurable behavior instead of consciousness [25]. Though emphasizing the importance of studying the overt actions of individuals, Watson also left room for the inclusion of some covert behavior, such as thoughts (i.e., subvocal speech), because thoughts are observable at least to the individual experiencing them. In behavioral theory, Watson frequently counters the common view of his time that heredity is the dominate force influencing most human behavior. That is, he emphasizes the important role of environmental stimuli eliciting behavior. Following Pavlov's work, Watson demonstrated how some

behaviors could be learned through the process of classical conditioning. Specifically, Watson and Watson [26] demonstrated learning by showing that an infant (i.e., Albert) had a fear response (e.g., crying) to a sudden loud noise, but he had no observable fear response when separately presented a white rat. After the rat and noise were presented together a few times, the infant began showing fearful responses to the rat alone. Watson's theory of *classical conditioning* has led to many clinical applications with children. For example, the behavioral treatment of anxiety disorders typically includes exposing the child to the feared stimulus until the fear is extinguished. In the case of a fear of white rats, the child would be exposed to the rat, without the sudden loud noises, until the child no longer demonstrates a fear response. Other examples of treatments utilizing the theory of classical conditioning include treatments for bedwetting and sleep problems.

Whereas Watson focused on the stimuli that preceded behavior, B. F. Skinner later focus on the consequences that followed behavior (see [24]). That is, he demonstrated the process of *operant conditioning* in which some consequences increase the likelihood of future behaviors (i.e., reinforcement) and other consequences decrease the likelihood of future behavior (i.e., punishment). Skinner also recognizes the importance of the role antecedents played in influencing behavior by being associated with particular consequences in the past. Some examples of the many other major contributions Skinner made to behavioral theory include: functional analysis, reinforcement schedules, shaping, and fading. Skinner also accounted for the role of cognitions in his theory by discussing both public events (i.e., overt behavior) and private events (i.e., covert behavior). Ultimately, Skinner viewed environmental stimuli as the primary force in shaping both public and private events. Since Skinner's work, his theories have been expanded and applied to children in various settings. Antecedent and consequence manipulation have become a part of many empirically supported interventions for children and adolescents [22]. For example, many empirically supported treatments make use of a token economy and other reward systems.

In the 1950s, theories began emerging which placed significantly greater weight on the important role of cognitions. Albert Ellis first termed his approach rational therapy, and later renamed it rational emotive therapy (RET) to help distinguish it from other theories. Ellis' approach focused on changing emotional and behavioral functioning through managing the individual's irrational thinking. As Ellis continued to incorporate behavioral techniques he again changed the name to *rational-emotive behavior therapy* (REBT; [14]). Essentially, REBT can be summarized by the acronym ABCDE [12, 15]. "A" in the acronym stands for the *activation* of irrational thinking by a specific event (e.g., a child is the picked last for a sports team). "B" stands for the irrational *beliefs* that follow the event (e.g., "everybody hates me"). "C" stands for the *consequences* of the irrational beliefs (e.g., anxiety, social avoidance, etc.). The therapist then encourages behavioral and emotional change through the final two steps of the model. That is, "D" represents the therapist's approach of *disputing* irrational thinking, and finally, "E" represents a more *effective* state of the individual's functioning.

Independently from Ellis, Aaron T. Beck found that his clients with depression consistently showed patterns of distorted thinking, leading A. Beck to the conclusion that depression was actually the result of distorted thinking [3]. He found that distorted thinking includes negative and unrealistic beliefs in three areas of a "cognitive triad": oneself, the future, and the world [10]. In A. Beck's later work, he expands his research beyond depression, increasing his application of *cognitive theory* to externalizing problems and anxiety [4, 5]. Through his early work [6] and the evolution of cognitive therapy through the contributions of his daughter, Judith Beck, three levels of belief have been revealed: automotive thoughts, intermediate beliefs, and core beliefs (Beck, 1995). *Automatic thoughts* are distinctive to each person or situation. *Intermediate beliefs* are assumptions or beliefs that an individual applies to their life. *Core beliefs* are comprehensive and unchanging beliefs applied to an individual's life. In the application of this theory, automatic thoughts and intermediate beliefs are viewed as a reflection of a similar core belief. Given this understanding, the theory suggests that treatment should focus on changing distorted thinking at the core belief level, while treatment would also focus on automatic thoughts and intermediate beliefs.

The work of Ellis and A. Beck focused primarily on adults; however, interventions with cognitive components have been increasingly applied to children and adolescents (and their parents) for both internalizing (e.g., anxiety, depression, etc.) and externalizing (i.e., aggression, conduct, etc.) problems. Together, A. Beck and Ellis contributed to what some refer to as the second wave of behavior therapy, also called the "cognitive revolution." As research using cognitive techniques was flourishing in the 1970s many debated the relative merits of using either behavior therapy or cognitive therapy, while others emphasized the value of an integrationist approach. Many of the integrationist approaches fall within what has been referred to as self-management. For example, D'Zurilla and Goldfried [13] presented the *cognitive problem solving model* in which a stressful situations is first identified and then

several possibilities for coping with the situation are generated. This adaptive coping response might be a behavioral response, a cognitive response, or both.

Albert Bandura also contributed an integrationist perspective based on his research on social learning (also known as modeling). Bandura [2] suggested that classical and operant conditioning did not completely account for all learning, proposing that some learning takes place without the individual needing to directly experience consequences. Bandura's bobo doll research demonstrates that children were more aggressive with a bobo doll after watching an adult's aggressive behavior with the doll [1]. Many treatments using variations of behavioral skills training include modeling the behaviors as a critical component. Over time Bandura placed greater emphasis cognitions, with the new label *social cognitive theory*. Specifically, Bandura suggests self-efficacy describes a person's beliefs that demonstrating a behavior will result in a desired outcome.

With his book *Cognitive-Behavior Modification* (1977) Meichenbaum explicitly attempts to integrate behavioral and cognitive theories into a unified approach for treating children [20]. Influenced by Bandura's early work, Meichenbaum noted that children not only learn from watching overt actions, they also imitate covert behavior. That is, children are exposed to their parental thoughts through their parent's speech (called cognitive modeling). Children then imitate their parent's speech, and soon these words can become internal speech (i.e., thought). Meichenbaum's technique of *self-instruction training* builds on his theory, by having parents model adaptive cognitive problem-solving skills. Children are then encouraged to imitate the adaptive responses aloud. Then children use whispered speech and finally subvocal speech. Meichenbaum also uses other standard behavioral techniques as part of his interventions. Distinguishing himself from Ellis and A. Beck, Meichenbaum suggests his intervention focuses on initiating adaptive cognitive responses rather than challenging maladaptive cognitive distortions.

While the "cognitive revolution" has been described as the second wave of behavior therapy, in recent years the beginnings of a third wave has also been described. Hayes [16] suggests this newest wave includes the acceptance- or mindfulness-based therapies. These therapies include many behavioral components but also incorporate teachings from Middle Eastern philosophy, such as meditation. Examples include *dialectical behavior therapy* (DBT; [19]), which has been applied to adolescents with borderline personality disorder, and *acceptance and commitment therapy* (ACT; [17]). One emphasis in ACT is the acceptance of strong emotions and cognitive distortions, rather than challenging them, as is done in the traditional cognitive approaches. The early research on ACT focused on adults; however, applications with children and their parents are growing [21].

The cognitive-behavioral therapies have been applied to a range of problems of childhood including anxiety, depression, behavior problems, attention problems, dealing with trauma, and eating disorders. In an attempt to define CBT [9] included three core features. First, *psychoeducation* is often the first phase of treatment and includes educating the child about the role of the environment and cognitions on functioning. Second, *cognitive restructuring* involves working with the child to identify and challenge maladaptive cognitions. Finally, *behavioral activation* involves helping the child increase adaptive behaviors, such as positive activity scheduling. The degree to which each of these components is utilized varies considerably from one client to the next, and many additional techniques are often incorporated. As the cognitive-behavioral approaches continue to multiply it becomes increasingly more difficult to define CBT. For example, ACT emphasizes acceptance of cognitions rather than disputing them.

Relevance to Childhood Development

Though the early cognitive approaches of Ellis and A. Beck focused primarily on adults, the integrationist approaches that followed had a much greater inclusion of children and adolescents. Hupp et al. [18] summarize some of the major differences regarding the use of CBT with adults and children. First, the child's developmental level will significantly impact the level to which cognitions can be explored during therapy [7]. For example, cognitions are not a focus of intervention with toddlers, though as children get older cognitions become of greater importance during therapy. Second, significantly others in the child's life (e.g., parents) are more likely to be directly involved during therapy. Thus, cognitive and behavioral approaches are quite often used with more than one person during therapy. Third, children are less likely to respond to the traditional "talk therapy" approaches that are often used with adults. Braswell and Kendall suggest "a therapist must be able to teach in a playful manner and play in a way that teaches" (p. 250). Fourth, therapy with children often uses the components of behavioral skills training as described by Miltenberger (2008): modeling, instructions, rehearsal, and feedback. Finally, cognitive-behavioral approaches with children often incorporate the ecological systems theory which considers the family, school, community, and culture to all have unique and

combined influences on child development [8]. As far as the effectiveness of the cognitive-behavioral therapies with children, the *Journal of Clinical Child and Adolescent Psychology* recently published a ten-year update on evidence-based treatments [23], and the many variations of CBT are well-represented.

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Cognitive-Behaviorism

▶Learning

Cognitivism

▶Cognitive Theories

Cohort

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Synonyms

Birth cohort; Friendship

Definition

A cohort refers to a group of subjects from a given subgroup defined by a particular characteristic i.e., same year

of birth (birth cohort), same gender or same culture [1]. Researchers are often interested in cohort effects as they can have a major influence on research outcomes. Cohort effects refer to the influence of factors other than age.

For example, children born 1986 in the areas surrounding Chernobyle 1986, (in the Ukraine, then a member state of the Soviet Union) who were exposed to the radioactive material that was released when its nuclear reactor failed may be considered to be a cohort. This group would be defined by exposure to radioactive material early in life and could have particular health problems which are not related to their age.

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Cohort Effect

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Definition

The effect that having been born in a certain time, region, period or having experienced the same life experience (in the same time period) has on the development or perceptions of a particular group. These perceptions, characteristics or effects are unique to the group in question.

Description

Cohort effects are often looked at in social science research studies. Cohort effects are teased out in order to account for the prevalence or lack thereof of particular characteristics that may skew interpretations of findings in research studies. Cohort effects are often looked at in studies that look at change over time. Future studies may consider the cohort effect of individuals who were elementary age and living in New York during 9/11. This catastrophic event indubitably has shaped the perceptions and development of this particular cohort. As such, consideration of these factors is imperative to produce research that yields the most fruitful results. It may be found that there is a high prevalence of depression, or pessimism in this group. Therefore if a study was researching optimism about life in freshman and sophomore college students, a counterintuitive finding that suggests that freshman and sophomore age students are pessimistic about life may be accounted for by a cohort effect. High prevalence of pessimism could be explained by the fact that they are a part of a cohort who lived through the experience of a traumatic event that has residual effects. This example demonstrates how cohort effects can threaten internal validity, such that what one thinks is being measured is not actually being measured.

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Colic

Definition

Colic is a condition characterized by recurrent episodes of prolonged crying in an otherwise healthy infant. It is usually diagnosed when the infant cries for more than three hours a day, three days a week for more than three weeks duration. In some babies, the cause of the colic is unknown, and may subside on it's own. In other babies, the cause of colic may be traced to acid reflux or a milk protein allergy.

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Collaborative

►Family Therapist

Collative Motivation

►Curiosity

Collectivism

Definition

Relates to a social pattern involving closely linked individuals who view themselves as parts of one or more collectives (family, co-workers, tribe, nation). These individuals tend to be strongly motivated by the norms of and duties required by those collectives, tend to put the goals of the collectives over their own personal goals, and tend to place emphasis on their connectedness to members of these collectives. Collectivism tends to be beneficial in social interaction involving families and work teams. However, some members in collectivist societies feel stifled by social demands and obligations and have a feeling of being dissatisfied.

Collectivism is usually contrasted with individualism. Individualism is a social pattern that involves loosely linked individuals who see themselves as independent of collectives. These individuals are mostly motivated by their own preferences, needs, rights, and their contract they have set up with others, tend to give priority to their personal goals over the goals of others and stress rational analyses of the advantages and disadvantages to associating with others. Individualism tends to work well in impersonal environs such as corporations and governmental hierarchies. Compared to individuals in collectivist society, members of individualist societies are more likely to feel isolated and lonely.

Research suggests that United States, Australia, Great Britain, Canada, The Netherlands, and New Zealand are considered to be individualist societies; East Asian, Middle Eastern, most Latin American, Mediterranean, and African cultures appear to be collectivist societies.

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Collectivist Cultures

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Synonyms

Community-oriented cultures; Group-oriented cultures

Definition

Collectivistic cultures are characterized by a worldview that values interdependence, belonging, and group-cohesion. Members of collectivistic cultures tend to evaluate their sense of worth, well-being and satisfaction with life based on the evaluation of external sources such as social norms, family expectations, relationships and interactions with members of their group [1]. Families tend to include the nuclear unit, as well as extended family members and members of the community [2]. In contrast, Individualistic cultures are characterized by a worldview that values independence, autonomy, and self-reliance and the family is usually composed of the nuclear unit [2, 4]. African-Americans, Asian-Americans and Latin-Americans are typically considered Collectivistic cultures [1, 2] and Western or Euro-Americans are typically considered Individualistic cultures. It should be noted that Collectivism and Individualism are at the extreme poles of a spectrum and significant within-group differences are found among both of these worldviews.

Relevance to Childhood Development

Child development theories are grounded within a cultural context. Common developmental "milestones" such as a child's ability to walk by a certain age or a young adult's ability to live independently are heavily influenced by Individualistic cultural worldviews. For example, infants are expected to sleep independently within a few months of birth and adolescents are expected to be self-reliant and have the capacity to live independently when they turn 18 years of age. On the contrary, within Collectivistic cultures, it is common to have children sleep with their parents into toddlerhood and independent living is not defined by age but rather by social norms and family obligations or expectations [3]. In collectivistic cultures, children learn by observing their family and members of the community [3]. Thus, child development is heavily influenced by the development of a group identity. Moreover, a child's well-being and development falls under the responsibility of the family and the community as a whole. Therefore, depending on the cultural context, child development and child-rearing practices differ drastically. As the United States becomes a nation that is racially and culturally diverse, common notions such as developmental "milestones" need to be carefully assessed within the cultural context of that particular child.

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Color Word Task

►Stroop Tasks

Commercials

►Media

Committees for the Protection of Human Subjects

►Institutional Review Boards

Common Sense

►Wisdom

Communicating Hydrocephalus

►Hydrocephalus

Communication

►Media

Communication Disorders

Synonyms

Expressive language disorders; Language disorders; Receptive language disorders; Speech and language disorders

Definition

A communication disorder - speech and language disorders which refer to problems in communication and in related areas such as oral motor function. The delays and disorders can range from simple sound substitution to the inability to understand or use language.

Communication is a multidimensional dynamic process that allows human beings to interact with their environment. It is through communication that children are able to express their thoughts, ideas, needs and emotions. There are, however, a number of communication delays that can affect a child's early language development. These may include, but are not limited to: Expressive and Receptive Language Disorders, Apraxia, Dyslexia, Phonological Disorder and Articulation problems. In general, communication disorders can be broken down into two categories.

Speech disorders refer to difficulties producing speech sounds or problems with voice quality. They might be characterized by an interruption in the flow or rhythm of speech, such as stuttering, which is called dysfluency. Speech disorders may be problems with the way sounds are formed, called articulation or phonological disorders, or they may be difficulties with the pitch, volume or quality of the voice. There may be a combination of several problems. People with speech disorders have trouble using some speech sounds, which can also be a symptom of a delay. They may say "see" when they mean "ski" or they may have trouble using other sounds like "l" or "r." Listeners may have trouble understanding what someone with a speech disorder is trying to say. People with voice disorders may have trouble with the way their voices sound.

A language disorder is an impairment in the ability to understand and/or use words in context, both verbally and nonverbally. Some characteristics of language disorders include improper use of words and their meanings, inability to express ideas, inappropriate grammatical patterns, reduced vocabulary and inability to follow directions. One or a combination of these characteristics may occur in children who are affected by language learning disabilities or developmental language delay. Children may hear or see a word but not be able to understand its meaning. They may have trouble getting others to understand what they are trying to communicate.

The overall estimate for speech and language disorders is widely agreed to be 5% of school-aged children. This figure includes voice disorders (3%) and stuttering (1%). The incidence of elementary school children who

exhibit delayed phonological (articulation) development is 2% to 3%, although the percentage decreases steadily with age.

Many speech problems are developmental rather than physiological, and as such they respond to remedial instruction. Language experiences are central to a young child's development. In the past, children with communication disorders were routinely removed from the regular class for individual speech and language therapy. This is still the case in severe instances, but the trend is toward keeping the child in the mainstream as much as possible. In order to accomplish this goal, teamwork among the teacher, speech and language therapist, audiologist, and parents is essential. Speech improvement and correction are blended into the regular classroom curriculum and the child's natural environment.

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Communication Skills

►Verbal Skills

Community Study

►Epidemiology

Community-Oriented Cultures

►Collectivist Cultures

Comorbidity

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Synonyms

Association; Dual diagnosis

Definition

Comorbidity is when two diagnostic categories tend to be associated above chance.

Description

Comorbidity is a term used in child clinical psychology when two diagnostic categories are significantly associated. These two conditions may co-exist and have a common underlying process, or they may be independent conditions that tend to co-occur [5]. For example, it is well known that children who have a diagnosed anxiety disorder according to DSM criteria have an above chance probability of having a DSM diagnosis of depression [1]. In other words, anxiety and depression are comorbid, they tend to occur together. Diagnostic categories are classified as yes/no decisions, that is, children either do or do not have an anxiety disorder, and either do or do not have childhood depression. Data illustrating this kind of pattern is contained in Fig. 1. In a non-clinical sample, a majority of children will have neither diagnoses, but comorbidity implies that some children will have both diagnoses, and fewer then chance will have one without the other. If this kind of data were collected within a child mental health clinic, the number of children with both diagnoses would be higher and the number of children with neither would be lower than a random non-clinical sample. Because clinical diagnoses are classified as yes/no decisions, these data are nominal, and a chi-square statistic could be used to examine for significant associations.

Comorbidity implies that children are in two categories at the same time. For example, in models of the development of juvenile delinquency, children with a diagnosis of attentional problems such as Attention-Deficit Hyperactivity Disorder (ADHD), and behavior problems such as in Oppositional-Defiant Disorder

Comorbidity. Fig. 1

(ODD) are at elevated risk for later delinquency [2]. In fact ADHD and ODD are also comorbid as they tend to occur together [4]. ADHD is also comorbid with Learning Disorders. The co-occurrence of clinical disorders that revolve around acting out may reflect a broader behavioral problem called externalizing behavior problems. In the example of anxiety and depression, psychological distress is turned inwards, and this comorbidity reflects a broader problem called an internalizing behavior problem or emotional distress.

Comorbidity does not have to be examined only in mental health diagnoses [6]. Medical diagnoses may be used also. For example, a history of chronic inner ear infections is *otitis media*, and this medical condition is more likely in children with ADHD than not [3]. In fact, because of comorbidity, this medical condition can actually be used to assist in a diagnosis of ADHD, as a parent having a child repeatedly on antibiotics for inner ear infections is a fairly salient and concrete event for parents to report to a clinical or developmental psychologist. Although comorbid, the common process is less clear, although it is likely children with ADHD may have specific hearing deficits associated with their chronic ear infections. Comorbidity studies are common in child-clinical and pediatric literatures, but they have relevance in child development research as there may a common underlying developmental process between both conditions of interest.

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Companions

▶Friends
▶Friendship

Compassion

▶Empathy

Complete Habit Reversal

▶Habit Reversal

Complex Figure

▶Rey Complex Figure Test

Complex Instruction (CI)

▶Cooperative Learning

Complex Partial Seizure

▶Psychomotor Seizures

Complex Trail Making Test

▶Trail Making Test

Compliance

▶Conformity Among Adolescents

Complicated Grief

▶Chronic Grief

Componential Knowledge

►Analytic Intelligence

Comprehensible Input

►Whole Language Approach

Comprehension

►Reading Skills

Comprehension Deficit

►Receptive Language Disorders

Comprehension-Knowledge

►Crystallized Intelligence

Comprehensive Assessment of Spoken Language

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Argosy University

Synonyms

CASL

Definition

The CASL is an individually and orally administered assessment of oral language development for children and adolescents ages 3 through 21 years. It can be used to assess language comprehension, expression, and retrieval across the following four categories of oral language: Lexical/Semantic, Syntactic, Supralinguistic, and Pragmatic. Administration of the core battery can be completed in approximately 30–45 min. Scores yielded include age and grade-based standard scores, age and grade equivalents, percentiles, normal curve equivalents, and stanines.

Description

The CASL was developed by Elizabeth Carrow-Woolfolk, Ph.D. based on her Integrative Language Theory (ILT), which suggests language is founded on two basic dimensions. According to ILT, language knowledge, the structure of language, and language performance, the process of comprehending and expressing language, provide the basis of spoken language. The battery was nationally standardized on a sample of 1,700 individuals, stratified by gender, race, ethnicity, geographic region, socioeconomic status, and special education according to the 1994 U.S. Census data [1].

Early criticism of the CASL suggested further research was needed to determine concurrent validity, or the extent to which CASL scores correlate with other language assessment tools [3]. The Pragmatic Judgment and Inferences tests of the CASL have since been found to discern

CASL test	Age range
Basic concepts	Core: 3–4
	Supplementary: 5–6
Antonyms	Core: 5–12
	Supplementary: 13–21
Synonyms	Core: 13–21
	Supplementary: 7–12
Sentence completion	Supplementary: 3–21
Idiomatic language	Supplementary: 11–21
Syntax construction	Core: 3–10
	Supplementary: 11–21
Paragraph comprehension	Core: 5–10
	Supplementary: 3–4 and 11–12
Grammatical morphemes	Core: 11–12
	Supplementary: 7–10 and 13–21
Sentence comprehension	Core: 11–12
	Supplementary: 13–21
Grammaticality judgment	Core: 13–21
	Supplementary: 7–12
Nonliteral language	Core: 7–21
Meaning from context	Core: 13–21
	Supplementary: 11–12
Inference	Supplementary: 7–17
Ambiguous sentences	Supplementary: 11–21

difficulties in the adaptive use of language for communication in individuals with Autism Spectrum Disorder [2]. The CASL is used both as a research tool and for the clinical assessment of language disorders. However, researchers have advocated against using only cutoff scores to diagnose specific language impairment, as most children with impaired language scored within one standard deviation of the normal mean distribution [4].

The CASL is composed of 15 tests measuring language processing skills (i.e., comprehension, expression, and retrieval) across four structural categories of oral language. The four oral language components assessed in this battery are as follows: lexical or semantic, syntactic, supralinguistic, and pragmatic. Core subtests can be used to estimate a global language composite while supplementary subtests yield additional diagnostic information regarding language delays, oral language disorders, dyslexia, and aphasia.

Lexical/Semantic

Lexical/Semantic aspects of language refer to the comprehension of single words and phrases. CASL tests measuring lexical/semantic components of language development focus on the knowledge and ability to appropriately use individual words and make word combinations. These tests include: Basic Concepts, Antonyms, Synonyms, Sentence Completion, and Idiomatic Language.

Syntactic

The syntactic component of oral language development refers to the knowledge and use of grammar. Syntactical assessment focuses on the structure of sentences and paragraphs. The CASL tests measuring syntax include: Syntax Construction, Paragraph Comprehension, Grammatical Morphemes, Sentence Comprehension, and Grammaticality Judgment.

Supralinguistic

Development of supralinguistic abilities involves understanding complex language whose meaning must be inferred from the given context. This component of language facilitates the comprehension of implied meanings that are not directly apparent based on lexical and syntactic combinations, such as figurative speech, sarcasm, and ambiguous statements. The CASL tests assessing supralinguistic abilities include: Nonliteral Language, Meaning from Context, Inference, and Ambiguous Sentences.

Pragmatic

The pragmatic component of language refers to the ability to use language appropriately and modify responses across varying contexts. Pragmatics encompass a wide range of conversational behaviors, such as selecting appropriate conversational topics, taking turns during dialogue, and using language to express emotions. The Pragmatic Judgment Test of the CASL primarily focuses on the expression of language; however, some emphasis also is placed on comprehension and the awareness of appropriate actions in a given context.

Relevance to Childhood Development

The CASL can be used to record oral language development in children from preschool through the postsecondary years. It is also a useful tool to aid in the diagnosis of autistic spectrum disorders and specific language impairments, as well as to gauge recovery and guide remediation in children who have had traumatic brain injuries or other medical conditions that affect language (e.g., childhood stroke).

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Computation

►Computational Skills

Computational Fluency

►Computational Skills

Computational Skills

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Synonyms

Arithmetic operations; Calculation; Computation; Computational fluency; Mental computation

Definition

Computational skills are the selection and application of arithmetic operations to calculate solutions to mathematical problems.

Description

Arithmetic encompasses a set of mathematic processes that include number sense, the understanding of mathematic principles such as the associative and commutative properties, and computational skills. Specifically, computational skills are defined as the abilities to calculate basic addition, subtraction, multiplication, and division problems quickly and accurately using mental methods, paper-and-pencil, and other tools, such as a calculator. This requires the selection of the appropriate arithmetic operation. Also, computational skills require the execution of the steps to calculate the solution. The term computational fluency expands the definition to include the flexible application of calculation strategies and the automatic recall of basic number facts.

Efficient computational skills require a sold understanding of the number system. Young children learn about numbers through interactions with their environment. Children begin to count and to share sets of objects while playing, assisting caregivers with chores, and other activities. As children receive formal mathematics instruction, they begin to use small blocks, beads, and other manipulatives to explore ways amounts can be combined or altered. Learning activities that provide a concrete demonstration of a skill contribute to the acquisition of the concepts and procedures associated with addition, subtraction, multiplication, and division operations.

In elementary school, children learn the steps or algorithm to compute problems. Children are taught to represent mathematic information using symbols in a standardize format using a mathematical expression or equation. Children learn to integrate number concepts, such as shifting and renaming numbers for borrowing and carrying, with the procedures to compute multi-digit by multi-digit problems. Children are provided frequent written computation practice. The repeated exposure and practice solving mathematic problems facilitates registration and recall of facts in long-term memory. Efficient fact recall supports problem solving in higher level mathematics.

Often children's mathematic skills are assessed by the speed and accuracy of computing arithmetic problems. However, measures of calculation skills assess children's working memory and fact knowledge. This provides a narrow view of mathematical abilities. Children's conceptual understanding, sequencing of information, translation of verbal information into mathematical symbols, and processing of visual-spatial information need to be assessed when investigating overall mathematic abilities.

Computation is one component of the skills needed to be proficient in mathematics. Children need to understand the underlying mathematical concepts to support computation and problem solving. Also, children need to select and apply procedures and strategies flexibly to compute problems accurately. Lastly, children need to understand the purpose and usefulness of computation as subset of mathematical knowledge.

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Computerized Assessment of Attention and Self Control

►Gordon Diagnostic System

Computerized Axial Tomography

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Synonyms

CAT; Computerized tomography (CT)

Definition

Computerized axial tomography (CAT) is a noninvasive diagnostic procedure that uses x-ray equipment to obtain three dimensional pictures of organs, bones, and tissues.

Description

CAT uses large amounts of ionizing radiation to scan cross-sectional images of the human body. Though CAT scanning is noninvasive and efficient, its radiation exposure, which is associated with increased risks of cancer, is higher than traditional x-rays. Similarly, a recent study presented at the American College of Radiology suggested that pediatric patients, especially those receiving pelvic or abdominal scans, are at twice the risk of radiation exposure as adults. However, because benefits of CAT scanning often outweigh its risks, the decision to use CAT scanning – even with pediatric patients – is often necessary. With children and adolescents, CAT scans are typically used to detect cancer, infectious or inflammatory disorders, causes of abdominal pain, and results of injuries, especially from car accidents. In the case of head injuries, for example, CAT can quickly display serious complications such as brain hemorrhaging or forms of brain damage.

Relevance to Childhood Development

CAT scanning is a tool that physicians may use to diagnose and treat problems with pediatric patients.

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Computerized Behavior Assessment

►Gordon Diagnostic System

Computerized Tomography (CT)

►Computerized Axial Tomography

Concentration

►Attention

Concept Formation

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Synonyms

Abstract mapping

Definition

Concepts are the foundation of knowledge. They allow people to classify and organize information.

Description

As children grow and develop they form concepts through the interactions with others and from experiences. Young children generally form concepts through the use of their senses. When a child forms a concept they must isolate characteristics of experiences based on similar attributes ([3], p. 3).

Concept formation begins in infancy. Through their senses of touch, smell, sight, hearing, and taste children take in information. When infants look around their environment they gain a sense of size, weight, and shape. They learn that many things are heavier than they are able to lift through their experiences. Shapes of objects are learned from the experiences of touching [3].

According to Swartz (http://www.allkindsofminds.org/ArticleDisplay.aspx?articleID=18), there are five different types of concepts. These are: concrete concepts, abstract concepts, verbal and non-verbal concepts. Concrete concepts examples would include desk, bird, boat, and seasons. Conversely, abstract concepts would not have sensory input. Examples of abstract concepts would be: love, hate, or beauty.

Verbal concepts are those that are best learned and comprehended through the use of language as a vehicle for explanation. Some examples of these would include

sarcasm, humor or sadness. Often verbal concepts are also abstract concepts (http://www.allkindsofminds.org/ArticleDisplay.aspx?articleID=18).

Representing mental pictures often is one of the best ways to understand non-verbal concepts. The mental picture can correspond to the most significant characteristics of the concept. Diameter, circumference, volume and mass are examples of non-verbal concepts (http://www.allkindsofminds.org/ArticleDisplay.aspx?articleID=18).

When introducing a child to a new concept it is helpful to first label the concept and then tie the label to actions. This could result in a demonstration of the actions of the object of your action upon the object ([2], p. 75).

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Concerta

►Stimulant Medications

Concerta® (Methylphenidate)

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Synonyms

Methylphenidate (generic)

Definition

Concerta is a central nervous system stimulant that increases the release of norepinephrine and dopamine in the cerebral cortex. The generic form of Concerta is Methylphenidate.

Description

Concerta (or other medications based on the generic Methylphenidate), along with psychological, educational, and social interventions, is used to treat attention deficit hyperactivity disorder (ADHD). It may also be used in patients who have narcolepsy or certain mood disorders.

Common side effects include: abdominal pain, decreased appetite, headache, dry mouth, nausea, insomnia, anxiety, dizziness, decreased weight, and irritability. Rare but more serious side effects include: rapid/irregular heartbeat, fainting, fever, sore throat, skin blistering/peeling/rash, aggression, restlessness, hallucinations, unusual behavior, motor tics, bruising, blurred vision, confusion, chest pain, shortness of breath, and seizures. Methylphenidate also can provoke mixed/manic episodes in patients with comorbid bipolar disorder.

This review of Concerta contains general information. For complete information about Concerta and individual use, a health care professional should be consulted.

Relevance to Childhood Development

Concerta is a well-established pharmacological treatment for the symptoms of ADHD (inattention, impulsivity, hyperactivity) in children and adolescents. At the same time, pharmacological treatment of ADHD may be needed for extended periods, but the effectiveness of methylphenidate in long-term use has not been systematically evaluated. Further, the safety and effectiveness of this drug in pediatric patients younger than 6 years have not been established.

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Conditional Discrimination

►Discrimination Learning

Conditioned Reinforcement

►Token Economies

Conditioning

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Synonyms

Classical conditioning; Habit; Instrumental conditioning; Learning; Operant conditioning; Respondent conditioning

Definition

Conditioning refers to any process by which an organism acquires new behaviors through repeated experience.

Description

There are two main types of conditioning. The study of the first, known as classical or respondent conditioning, originated in the early twentieth Century work of the Soviet physiologist Ivan Pavlov (1849–1936) and the American psychologist Edwin B. Twitmyer (1873–1943); it found its best-known adherent in John B. Watson (1878–1958), who popularized the term "behaviorism." The study of the second, known as operant or instrumental conditioning, primarily derives from the works of B. F. Skinner (1904–1990). Both forms of conditioning were extensively researched in laboratory work using not only humans but also other living creatures such as pigeons, rats, and dogs. While the distinction between the two major types of conditioning is very clear within experimental research, it is important to remember that in the real world, both forms of conditioning may operate simultaneously to influence the behavior of all living things. Although the biological predispositions toward certain types of conditioning and the potential limitations of conditioning to explain aspects of cognition have been touted by physiologically and cognitively oriented psychologists [3, 5], the utility of conditioning as a means to understand behavior through a mechanistic perspective certainly remains strong.

Classical Conditioning

Classical conditioning is a form of learning in which an organism comes to associate one stimulus with another, prompting a behavior previously associated only with the first stimulus. In the terminology of classical conditioning, those stimuli that an organism does not need to learn to respond to are called "unconditioned stimuli." Those stimuli which an organism learns to respond to are called "conditioned stimuli." If the unconditioned and conditioned stimuli are reliably presented in a predictable sequence in which the conditioned stimulus appears immediately prior to the unconditioned stimulus, over a period of trials the organism can learn to respond only to the conditioned stimulus. These responses are referred to as "conditioned" because even though they are the exact same behaviors elicited in response to the unconditioned stimuli, they are being evoked by a conditioned stimulus.

In Pavlov's seminal research, for example, dogs were trained to salivate to the ringing of a bell. Salivation is a naturally occurring response to a stimulus such as presentation of food, and does not need to be learned. By reliably pairing the ringing of a bell to the presentation of food, Pavlov was able to elicit the salivating behavior even when the food was no longer reliably presented immediately after the bell was rung. Twitmyer performed a similar experiment in which human participants learned to associate the ringing of a bell to being struck on the knee with a hammer, and therefore were conditioned to exhibit the patellar reflex in response to the sound of a bell.

Much of classical conditioning, as is evident from the examples given, is concerned with the elicitation of reflexive physical behavior in response to formerly novel or neutral stimuli. These reflexes include blinking, salivating, and swallowing. As Watson's theorizing matured, he preferred to conceptualize the learning occurring in classical conditioning as the formation of habits. Watson also demonstrated that classical conditioning can also be used to influence behavior that is not purely reflexive, as in the controversial "Little Albert" study he published with Rayner (1920), in which an 11-month old child was conditioned to become fearful of a white rat to which he previously exhibited no negative reaction.

Should the association between the conditioned and unconditioned stimuli become weakened, a phenomenon known as "extinction" occurs. The organism no longer reliably exhibits the conditioned response (although it will still reliably exhibit the reflexive, unconditioned response to the unconditioned stimulus). Such behaviors are said to be "extinguished." However, if the relationship between the stimuli is re-established, the organism will relearn the behavior at a much faster rate than before, suggesting that the behavior was never completely unlearned. This rapid relearning is called "spontaneous recovery."

Operant Conditioning

Operant conditioning is not as dependent upon reflexive behavior as is classical conditioning. Instead, operant conditioning is primarily concerned with the effects of reinforcement and punishment upon behaviors. Rather than focusing on stimuli, operant conditioning focuses on the

consequences of behaviors, and what makes learned behaviors stronger or weaker. We should not misconstrue operant conditioning as being a technique which somehow transcends the biological hard-wiring of instinctive behaviors; as early as 1961, Skinner's former students Keller and Marian Breland, described the tendency of animals with strong instinctive behaviors to revert to these behaviors even after being successfully trained via operant conditioning, a phenomenon the Brelands termed "instinctive drift."

In operant conditioning, "reinforcement" refers to anything that makes a behavior more likely to occur. We can distinguish between positive reinforcement, which is analogous to a reward, and negative reinforcement, in which something unwanted or undesirable is removed as a result of a behavior. Giving a dog a treat for obeying commands is a good example of positive reinforcement, whereas turning an alarm clock off to stop the loud, unpleasant ringing of bells is a good example of negative reinforcement. Behaviors commonly associated with negative reinforcement are termed "escape" and "avoidance" because the organism is rewarded for escaping from or avoiding an unpleasant stimulus. Reinforcements can also be described as "primary," in which case they satisfy a basic biological need, or "secondary" in which their value is learned. Money, for example, is something we can use to buy food and drink and therefore is a secondary reinforcement. In general, reinforcements have a stronger effect on behaviors when they appear relatively soon after the behavior. Behaviors that are not reinforced tend not to be repeated.

Ferster (1922–1981) and Skinner are credited with distinguishing among four different schedules of reinforcement in the landmark book *Schedules of Reinforcement* (1957). These schedules are known as variable interval, fixed interval, variable ratio, and fixed ratio. "Interval" refers to the amount of time a behavior continuously occurs. "Ratio" refers to the actual amount of the behavior. "Fixed" means that the schedule is predictable, and "variable" means that the schedule is unpredictable. Due to their unpredictable nature, learning tends to occur slowly with variable ratio schedules, yet the very unpredictability of reinforcement under this schedule also means that behaviors reinforced using variable ratio schedules are highly resistant to extinction and will continue long after reinforcement has ceased. These schedules of reinforcement have been observed in both the laboratory and the real world. Being paid a set salary weekly, for example, is an example of a fixed interval schedule and being paid a set amount based on the amount of work completed is an example of a fixed ratio scale. Gambling behaviors such as playing slot machines are prime examples of reinforcement on variable ratio schedules and are quite difficult to extinguish.

Both in the laboratory and in the real world, operant conditioning can be used to train exceptionally complex behaviors through a technique in which organisms are first reinforced for performing a task that only vaguely approximates the desired behavior. Gradually, the reinforcements are given only when the organism's behaviors more closely approach the desired behavior and finally, the reinforcements are given only when the exact desired behavior is exhibited. This is referred to by conditioning researchers as "shaping through successive approximations" and explains how complex behaviors that are unlikely to emerge fully-formed can eventually become as deeply-ingrained as simpler behaviors.

Operant conditioning also elaborates upon "punishment," which is anything that causes a behavior to decrease in frequency. In this sense, the word "punishment" has a very close meaning to its English vernacular. Punishment is effective in getting an organism to immediately cease a potentially dangerous behavior. However, research demonstrates that such behaviors are not extinguished but merely suppressed, and not only do such behaviors re-emerge in the absence of the punisher but undesirable side-effects such as displaced aggression often appear in the punished organism. Skinner himself vocally opposed punishment on both humanitarian and practical grounds Thus, for durable long-term changes in behavior, conditioning researchers and practitioners usually recommend the use of both positive and negative reinforcement to promote desired behaviors that are incompatible with the undesired behavior.

Relevance to Childhood Development

Despite often being misconstrued as a purely experimental laboratory science, from almost the beginning behavioral scientists specializing in conditioning have sought out real world applications for their work, particularly in relation to childhood development and associated spheres such as education and the remediation of developmental delays. Watson and Rayner's "Little Albert" study, while often written about from the perspectives of those who rightly deplore the study's ethical lapses, also deserves attention for being one of the earliest attempts to apply the basics of laboratory science to understanding childhood development. This was not an anomaly for Watson, who earlier penned the broad "Psychology as the Behaviorist Sees It (1913)," and would later popularly publish childrearing advice for parents in *Psychological Care of Infant and Child* (1928).

Skinner conceptualized developmental changes in behavior as the accumulation of responses largely learned through operant conditioning, providing a mechanistic alternative to the largely biological and psychodynamic schools of development that were in the mainstream for much of the twentieth Century. As an empiricist and theoretician, Skinner deplored what he viewed as inconsistent reinforcers and inefficient environmental controls in the classroom, and advocated self-paced learning with contingencies similar to Skinner's schedules of reinforcement; not only did Skinner provide the groundwork for what he called "teaching machines," but he also collaborated with other authors on self-tutorial textbooks such as *The Analysis of Behavior* (1961). Skinnerian principles of reinforcement provide the backbone of the field of behavior analysis, which has numerous implications not only for everyday classroom management but also for remediation and training of social skills for children with special needs. Stuttering, asocial behavior, below-average academic performance, and hyperactivity are all areas that can show tremendous improvement using programs grounded in conditioning theory.

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Conduct Disorder

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Synonyms

Aggressive behaviors; Behavioral disorders; Behavioral disturbances; Defiance and norm violation; Severe emotional and behavioral problem

Definition

Conduct disorder is a mental health disorder in which there is a significant repetitive and persistent pattern of anti-social, rule-breaking, and norm-violating behaviors.

Description

According to the Diagnostic and Statistical Manual of Mental Disorders IV-TR [1], the main characteristic of conduct disorder is a persistent and recurring behavioral pattern of rights violation of others, ruling breaking, and infringement of social norms. These behaviors can include but are not limited to aggressive conduct that instigates physical harm to people and/or animals, actions that cause property damage, and larceny. These behavioral disturbances must create significant functioning impairment in social, academic, or occupational domain. Conduct disorders are usually diagnosed in childhood or adolescence, but may be diagnosed for adults when the individuals do not meet the criteria for Antisocial Personality Disorder.

Typically, children with conduct disorder display aggressive behaviors toward others. They bully, threaten other children; they engage in fights and use weapons. In severe cases, they would taunt their victims, or even force someone into sexual activity. Studies have estimated the prevalence of conduct disorder has increased with higher occurrence in urban areas. Depending on the samples and methods, for boys under the age of 18, it is reported to be between 6% to 16%, while it is estimated from 2% to 9% for girls in the population. Given its high prevalence rate,

conduct disorder is a common diagnosis for children and adolescent in mental health facilities [1].

Twin and adoption studies have provided evidence of both genetic and environmental factors in the development of conduct disorder. For example, the risk for conduct disorder increases when a child's caregiver has Antisocial Personality Disorder or when siblings have similar emotional behavioral problems. Other disorders that have been linked to conduct disorder include Alcohol Dependence, Mood Disorders, Schizophrenia, and Attention-Deficit/Hyperactivity Disorder [1]. Other studies have offered similar findings. For example, parents' antisocial personalities are associated with children's conduct problems [5]. Additionally, in an Epidemiological Catchment Area study, with 20,000 persons, conduct problem prior to age 15 is highly associated with schizophrenia than the general population [7].

In terms of long-term outcomes for individuals with conduct disorder, studies have painted a somewhat bleak picture. Children with conduct disorder have poor prognosis in later years; they are more likely to have criminal history, mental and medical problems, domestic violence and financial problems. When conduct problem occurs before the age of 10, children may have lower IQ, ADHD, poor temperament, neglect, and low socio-economic status [6]. Correspondingly, the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) produced similar results. This study looked at 56 sites in the United States and found that three-quarters of men who had childhood onset conduct disorder had more aggressive behaviors when compared to others [9]. Other studies showed that adolescents with conduct problems use more alcohol and drug [2] at a younger age than their peers [8]. One interesting note is Blair and Coles [3] found that children with conduct disorder are less likely to identify sadness and fear expressions in laboratory test. Other attempts to investigate child conduct difficulties have converged on the adequacy of parenting [4].

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Conduction Aphasia

►Childhood Aphasia

Confirmatory Factory Analysis

►Structural Equation Modeling

Conformists

►Conformity Among Adolescents

Conformity Among Adolescents

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Synonyms

Compliance; Conformists; Obedience; Peer groups; Peer influences; Peer pressure; Social competence; Social influence

Definition

Conformity among adolescents refers to the degree of compliance (e.g., peer pressure or fitting in) with peer defined socially acceptable norms on how to act, think, and feel.

Description

During the early 1950s and 1960s a new concept that dominated the field of psychology was formed called; "social psychology" that emphasized that all people have a desire to essentially fit in with a group or follow socially accepted norms to avoid being labeled as an outcast [4]. The world is filled with people who long to feel a sense of belonging to a group or a relational connection with other people. Those whom are unable to achieve this need to fit in may then start to feel socially excluded, oppressed, rejected, or regarded as social deviants. This need to fit in or be accepted by peers typically is most prevalent in the adolescent years of development (ages 11–17). Adolescence is a period of human development when someone is no longer considered a child, but has not yet reached adulthood.

Adolescent years are filled with many potential stressors such as: peer pressures, physiological and emotional changes associated with puberty, an increase in one's autonomy, the need for close peer relationships, and the development of one's identity. All of these events in some shape or another are molded by the level of peer group acceptance or conformity by teens. The term conformity, defined as the degree to which individuals follow the socially accepted rules for behavior set by peers or parents, is commonly used when describing adolescents preferably using the word, "conformists" [1]. This trend is also referred to as peer pressure which becomes visible when evaluating how groups of adolescents adhere to peer established group norms defining one's clothing selection, body shape or size, hairstyles, demeanor, etc. to name a few. On the other hand these peer established group norms or rules can also be characteristics targeted by bullies [3]. John [2] original motion picture, *The Breakfast Club*, so eloquently illustrated the concept of conformity among adolescents, by using five characters to depict five different peer groups and the common stressors that adolescents face [2]. This film portrays the adolescent stereotypes of the prom queen (Molly Ringwald), the jock (Emilio Estevez), the nerd (Anothy Michael Hall), the misfit (Ally Sheedy), and the criminal (Judd Nelson), but in the end shows that each character's original perceived differences that initially separated each character from the other; really made them realize just how similar they really were in the end of the film. The characters actually became friends and developed a relational connection that would always be remembered from their experience together in detention.

One of the most important ways to buffer the bullying experienced by some adolescents is to have close peer relationships or friendships. Adolescents typically select friends that share common interests, values, and attitudes. [1] described how adolescents with stable peer friendships often achieve higher academic performance, adapt to their environments, and exhibit less signs of problematic behavior than those youth who do not have stable peer relationships. These intimate friendships are highly influential in the personal lives of adolescents and hold true for both males and females. Additionally, adolescents with intimate friends are more likely to be sensitive to other's feelings, engage in altruistic behaviors, and show a mutual understanding and relational connection with each other [1].

Relevance to Childhood Development

As children progress to the adolescent years of development they begin to seek a greater sense of autonomy from parents and other adults. This new found sense of autonomy and need for more responsibility and freedom lures adolescents to pursue the comfort and acceptance from peer groups. The adherence to these peer defined norms of behavior (conformity) causes adolescents to become more susceptible to peer pressures which impact the development of one's identity.

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Congenital Maladroitness

►Developmental Coordination Disorder

Congenital Morbidity

►Birth Defects

Conjoint Therapy

►Family Therapy

Conners' Parent Rating Scale – Revised

►Conners-Wells Adolescent Self Report Scale

Conners' Parent Rating Scale: Revised

►Conners' Teacher Rating Scales: Revised

Conners' Parent Rating Scales – Revised

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Synonyms

Conners' teacher rating scale – revised; Conners-wells adolescent self report scale personality testing

Definition

The Conners' Parent Rating Scale – Revised is a parent report scale appropriate for parents with children between the ages of 3 and 17.

Description

The Conners' Parent Rating Scale – Revised (CPRS-R) is the parent form of the Conners' Rating Scales – Revised (CRS-R). The CRS-R were designed to address the need for a multimodal assessment of children and adolescent's behavioral difficulties and contain a parent form, and teacher form, and an adolescent self report form. The parent form, the CPRS-R, is appropriate for use with parents of children and adolescents ages 3 through 17. There are two forms of the CPRS-R: the Long Form (CPRS-R:L) and the Short Form (CPRS-R:S). The Long Form contains 80 items and can be completed by most parents/guardians in approximately 20 minutes; the Short Form contains 27 Items and can be completed in 5 to 10 minutes. On each form, the parents/guardians rate how often their child or adolescent engages in the behaviors listed on a form based on a four point scale. The scale ranges from Not True at All (Never) to Very Much True (Very Often) [1, 2, 4, 5].

The CRS-R system is useful when assessing children and adolescents for Attention Deficit/Hyperactive Disorder (ADHD). The items on the measures are face valid and very similar to the diagnostic criteria for ADHD in the DSM-IV [1, 3, 5].

Scales

Both forms of the CPRS-R have a variety of scales. The raw scores from the items on the CPRS-R are converted into T-scores [1].

The 80 items on the CPRS-R:L can be used to calculate seven subscales, an ADHD Index, three Conners' Global Indices (CGI) and three DSM-IV Symptom Indices. The seven subscales assess for a variety of behaviors that have been associated with behavior problems in children and adolescents, including Oppositional, Cognitive Problems/Inattention, Hyperactivity, Anxious-Shy, Perfectionism, Social Problems, and Psychosomatic. The ADHD Index is useful when identifying children and adolescents who may meet DSM-IV criteria for ADHD. There is strong evidence for ADHD when the ADHD Index, the DSM-IV Symptoms Indices, the Hyperactivity Subscale, and the Cognitive Problems/Inattention Subscales are all elevated [1].

The CGI-Total is comprised of the CGI Restless-Impulsive and the CGI Emotional Lability. The CGI-Total is best described as a general measure of psychopathology. The CGI Restless-Impulsive is associated with symptoms of hyperactivity while the CGI Emotional Lability is associated with mood swings [1].

The three DSM-IV indices were designed to determine how many DSM-IV criteria for ADHD the child or adolescent being assessed meets. The three DSM-IV indices are divided into a DSM-IV Total, DSM-IV Inattention, and DSM-IV Hyperactive-Impulsive. These indices can be scored dimensionally (e.g., transformation into T scores) and categorically (e.g., counting the number of items endorsed as occurring "Often" [1]).

The CPRS-R:S contains 28 items that can be used to calculate three scales (Oppositional, Cognitive Problems/Inattention, and Hyperactivity) and the ADHD Index. The manual reports the short form should be used over the long form when there is not enough time to complete the long form or when the clinician plans to administer the test numerous times to the same individual [1].

Scoring

The CPRS-R can be scored by hand in approximately 10 minutes. The raw scores for each index are transformed into T scores on the scoring sheet. There are separate scoring sheets for males and female children/adolescents. Additionally, each scoring sheet contains five different sets of norms for different age groups.

Unlike other personality tests, the CPRS-R:L and CPRS-R:S do not have formal reliability and validity scales. Instead, the manual recommends that the mental health professional using the CPRS-R examine the protocol for random responding by assessing for an overabundance of one particular answer and zigzag patterns. Additionally, the mental health professional should examine the protocol for inconsistent responses [1].

Psychometric Properties

The CRS-R was standardized on over 8,000 individuals between the ages of 3 and 17 in the United States and Canada. The standardization sample was representative of sex and age. Additionally, the manual notes that minority groups were well-represented. The internal consistency of the CPRS-R:L is good and range from 0.772 (Psychosomatic – Male) to 0.936 (ADHD – Male). The internal consistency for the CPRS-R:S was similar, ranging from 0.857 (Hyperactivity – Female) to 0.938 (ADHD – Male). The test-retest reliability for the CPRS-R:L ranges between 0.47 (Anxious-Shy) and 0.85 (Hyperactivity) while the test–retest reliability for the CPSR-R:S ranges from 0.62 (Oppositional) to 0.85 (Hyperactivity) [1, 2].

Relevance to Childhood Development

The CRS-R can be used to screen children and adolescents for symptoms of ADHD [1, 6].

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Conners' Teacher Rating Scale – Revised

►Conners' Parent Rating Scales – Revised
►Conners-Wells Adolescent Self Report Scale

Conners' Teacher Rating Scales: Revised

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Synonyms

Conners' parent rating scale: revised; Conners–wells adolescent self report scale; Personality testing

Definition

The Conners' Teacher Rating Scale – Revised is a teacher report scale appropriate for teachers of children and adolescents between the ages of 3 and 17.

Description

The Conners' Teacher Rating Scale – Revised (CTRS-R) is the teacher form of the Conners' Rating Scales – Revised (CRS-R). The CRS-R were designed to address the need for a multimodal assessment of children and adolescent's behavioral difficulties and contain a parent form, and teacher form, and an adolescent self report form. The teacher form, the CTRS-R, is appropriate for use with teachers of children and adolescents ages 3 through 17. There are two forms of the CTRS-R: the Long Form (CTRS-R:L) and the Short Form (CTRS-R:S). The Long Form contains 59 items and the Short Form contains 28 Items. On each form, the teachers rate how often their students engage in the behaviors listed on a form based on a four point scale. The scale ranges from Not True at All (Never) to Very Much True (Very Often) [1, 2].

The CRS-R system is useful when assessing children and adolescents for attention deficit hyperactive disorder

(ADHD). The items on the measures are face valid and very similar to the diagnostic criteria for ADHD in the DSM-IV [1, 3].

Scales

Both forms of the CTRS-R have a variety of scales. The raw scores from the items on the CTRS-R are converted into T-scores [1].

The 59 items on the CTRS-R:L can be used to calculate six subscales, an ADHD Index, three Conners' Global Indices (CGI) and three DSM-IV Symptom Indices. The six subscales assess for a variety of behaviors that have been associated with behavior problems in children and adolescents, including Oppositional, Cognitive Problems/Inattention, Hyperactivity, Anxious-Shy, Perfectionism, and Social Problems. The ADHD Index is useful when identifying students who may meet DSM-IV criteria for ADHD. There is strong evidence for ADHD when the ADHD Index, the DSM-IV Symptoms Indices, the Hyperactivity Subscale, and the Cognitive Problems/Inattention Subscales are all elevated.

The CGI-Total is comprised of the CGI Restless-Impulsive and the CGI Emotional Lability. The CGI-Total is best described as a general measure of psychopathology. The CGI Restless-Impulsive is associated with symptoms of hyperactivity while the CGI Emotional Lability is associated with mood swings.

The three DSM-IV indices were designed to determine how many DSM-IV criteria for ADHD the student being assessed meets. The three DSM-IV indices are divided into a DSM-IV Total, DSM-IV Inattention, and DSM-IV Hyperactive-Impulsive. These indices can be scored dimensionally (e.g., transformation into T scores) and categorically (e.g., counting the number of items endorsed as occurring "Often" [1].

The CTRS-R:S contains 28 items that can be used to calculate three scales (Oppositional, Cognitive Problems/Inattention, and Hyperactivity) and the ADHD Index. The manual reports the short form should be used over the long form when there is not enough time to complete the long form or when the clinician plans to administer the test numerous times to the same individual [1].

Scoring

The CTRS-R can be scored by hand in approximately 10 min. The raw scores for each index are transformed into T scores on the scoring sheet. There are separate scoring sheets for males and female children/adolescents. Additionally, each scoring sheet contains five different sets of norms for different age groups.

Unlike other personality tests, the CTRS-R:L and CTRS-R:S do not have formal reliability and validity scales. Instead, the manual recommends that the mental health professional using the CTRS-R examine the protocol for random responding by assessing for an overabundance of one particular answer and zigzag patterns. Additionally, the mental health professional should examine the protocol for inconsistent responses [1].

Psychometric Properties

The CRS-R was standardized on over 8,000 individuals between the ages of 3 and 17 in the United States and Canada. The standardization sample was representative of sex and age. Additionally, the manual notes that minority groups were well-represented. The CTRS-R:L was standardized on teacher ratings of 1,983 children and adolescents when the CTRS-R:S was standardized on the ratings of 1,897 children and adolescents. The internal consistency of the CTRS-R:L is good and range from 0.773 (CGI Emotional-Labile – Female) to 0.958 (DSM Total – Male). The internal consistency for the CTRS-R:S was similar, ranging from 0.882 (Cognitive Problems/Inattention – Male) to 0.952 (ADHD – Male). The test–retest reliability for the CTRS-R:L ranges between 0.47 (Cognitive Problems/Inattention and DSM-IV Hyperactive-Impulsive) and 0.99 (Anxious/Shy) while the test–retest reliability for the CTSR-R:S ranges from 0.72 (Hyperactivity) to 0.92 (Cognitive Problems/Inattention) [1].

Relevance to Childhood Development

The CRS-R can be used to screen children and adolescents for symptoms of ADHD. It can also be used as part of a comprehensive psychological evaluation to diagnose ADHD.

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Conners-Wells Adolescent Self Report Scale

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Synonyms

Conners' parent rating scale – revised; Conners' teacher rating scale – revised; Personality testing

Definition

Conners-Wells Adolescent Self Report Scale is a self-report scale of symptoms appropriate for adolescents between the ages of 12 and 17.

Description

Conners-Wells Adolescent Self Report Scale (CASS) is the adolescent form of the Conners' Rating Scales – Revised (CRS-R). The CRS-R were designed to address the need for a multimodal assessment of children and adolescent's behavioral difficulties and contain a parent form, and teacher form, and an adolescent self report form. The adolescent self-report form, the CASS, is appropriate for use with adolescents ages 12 through 17, although some studies have examined its utility with children younger than 12 [1, 2]. There are two forms of the CASS: the Long Form (CASS:L) and the Short Form (CASS:S). The Long Form contains 87 items and the Short Form contains 27 Items. Both forms were written to be at a sixth grade reading level and can be completed quickly (e.g., less than 20 minutes for the long form). On each form, the adolescents rate how often they engage in the behaviors listed on a form based on a four point scale. The scale ranges from Not True at All (Never) to Very Much True (Very Often) [1, 3].

The CRS-R system is particularly useful when assessing children and adolescents for Attention Deficit/Hyperactive Disorder (ADHD). The items on the measures are face valid and very similar to the diagnostic criteria for ADHD in the DSM-IV [1, 3]. Additionally, the CASS can be used to help identify adolescents who may benefit from additional evaluation or intervention.

Scales

Both forms of the CASS have a variety of scales. For all of the CRS-R forms, the raw scores from the items are converted into T-scores [1]. The CASS differs from the teacher and parent version of the CRS-R because it does not provide the Conners' Global Indices.

The 87 items on the CASS:L can be used to calculate six subscales, an ADHD Index, and three DSM-IV Symptom Indices. The six subscales assess for a variety of behaviors that have been associated with behavior problems in children and adolescents, including Family Problems, Emotional Problems, Conduct Problems, Cognitive Problems/Inattention, Anger Control Problems, and Hyperactivity. The Family Problems scale is unique to the CASS and identifies adolescents who are experiencing difficulties within their family system. The ADHD Index is useful when identifying students who may meet DSM-IV criteria for ADHD. There is strong evidence for ADHD when the ADHD Index, the DSM-IV Symptoms Indices, the Hyperactivity Subscale, and the Cognitive Problems/Inattention Subscales are all elevated [1, 4]. This is especially true when these elevations are consistent across raters (e.g., the adolescent, parents, and teachers).

The three DSM-IV indices were designed to determine how many DSM-IV criteria for ADHD the adolescent being assessed meets. The three DSM-IV indices are divided into a DSM-IV Total, DSM-IV Inattention, and DSM-IV Hyperactive-Impulsive. These indices can be scored dimensionally (e.g., transformation into T scores) and categorically (e.g., counting the number of items endorsed as occurring "Often" [1]).

The CASS:S contains 27 items that can be used to calculate three scales (Conduct Problems, Cognitive Problems/Inattention, and Hyperactive-Impulsive) and the ADHD Index. The manual reports the short form should be used over the long form when there is not enough time to complete the long form or when the clinician plans to administer the test numerous times to the same individual [1].

Scoring

Similar to the other instruments that comprise the CRS-R system, the CASS can be scored by hand in approximately 10 minutes. The raw scores for each index are transformed into T scores on the scoring sheet. There are separate scoring sheets for males and female children/adolescents. Additionally, each scoring sheet contains two different sets of norms for different age groups.

Unlike some instruments for adolescents, the CASS:L and CASS:S do not have formal reliability and validity scales. Instead, the manual recommends that the mental health professional using the CASS examine the protocol for random responding by assessing for an overabundance of one particular answer and zigzag patterns. Additionally, the mental health professional should examine the protocol for inconsistent responses [1].

Psychometric Properties

The CRS-R was standardized on over 8,000 individuals between the ages of 3 and 17 in the United States and Canada. The standardization sample was representative of sex and age. Additionally, the manual notes that minority groups were well-represented. The CASS:L was standardized on 3,394 adolescents when the CTRS-R:S was standardized on 3,486 adolescents. The internal consistency of the CASS:L is good and ranges from 0.743 (Hyperactive-Impulsive – Female) to 0.894 (Conduct Problems – Male). The internal consistency for the CASS:S was similar, ranging from 0.753 (ADHD Index - Male) to 0.849 (Conduct Problems – Male). The test–retest reliability for the CASS:L ranges between 0.73 (Cognitive Problems/Inattention) to 0.89 (Emotional Problems) while the test–retest reliability for the CASS:S ranges from 0.72 (Conduct Problems) to 0.87 (ADHD Index) [1].

Relevance to Childhood Development

The CRS-R can be used to screen children and adolescents for symptoms of ADHD. The CASS can be used to identify adolescents who are experiencing symptoms consistent with ADHD (e.g., difficulty sustaining attention) and to identify adolescents who may benefit from additional assessment or intervention [4, 5].

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Conners–Wells Adolescent Self Report Scale

►Conners' Teacher Rating Scales: Revised

Conners-Wells Adolescent Self Report Scale Personality testing

►Conners' Parent Rating Scales – Revised

Consequences

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Synonyms

Effect; Outcome

Definition

Within the context of behaviorism and learning theory, consequences are outcomes that follow a behavior.

Description

A consequence is the outcome or effect that follows a behavior. A consequence indicates the importance or significance of the behavior that immediately preceded the consequence. The repetition or non-repetition of the behavior is determined by the conditions of the consequence. It is a learning, or cause and effect, relationship [1].

Related to Behavioral Therapy

The focus on consequences of behavior, in order to change the behavior, is utilized in the behavioral therapy approach and there are numerous techniques used within this theoretical orientation. Positive reinforcement involves providing a consequence that supports the behavior. It is utilized to increase the probability of the behavior occurring again. Negative reinforcement involves the removal of an aversive stimulus in order to increase the likelihood of the behavior. Punishment techniques are used to decrease the behavior by applying aversive consequences immediately following the behavior. Thus, behavioral therapy uses different types of consequences to either increase desirable behaviors or decrease undesirable behaviors. Along with reinforcements and punishments, skills training and practice can be used as well.

Related to Rational Emotive Behavior Therapy

The central concept of Rational Emotive Behavior Therapy (REBT) is ABC: Antecedents, Beliefs, and Consequences.

In this theoretical approach a consequence is a result of the belief about the antecedent, which may be an event, experience, thought, or emotion. The consequence can either be adaptive or maladaptive. When the consequences are primarily unhealthy, creating negative emotions and self defeating behaviors, different techniques are utilized to produce a more rational thought process. "Disputing" is the primary technique utilized to produce a healthier consequence for the individual [2]. Other techniques include role playing, rational-irrational dialogues, reinforcements and penalties, homework, shame attacking, and skills training.

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Consistency

►Reliability

Console Games

►Video Games

Constructive Controversy (CC)

►Cooperative Learning

Constructive Play

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Synonyms

Solitary constructive play

Definition

Constructive Play is the using or manipulating of objects with creation or construction of something as a purpose. Constructive play is the use of materials by children to achieve a specific goal in mind that requires transformation of objects into something new.

Description

This type of play typically emerges in children around the age of 2 and will be the dominant type of play from the age of 3 and on [1]. The primary goal of this type of play is not the having of the object, but the creation of the object [2]. This type of play also allows the child to develop their own working theories about the natural, social, material, physical worlds through enquiry research, exploration, generation, and modification [4].

Relevance to Childhood Development

Over the years, early childhood researchers have found that constructive play is essential for children as a building block and critical component of the foundation researchers feel children need to lead happy, healthy, and productive lives. Experts agree that constructive play is safe, wholesome, and non-violent and that it stimulates children to develop skills and positive relationships. According to researchers, constructive play also inspires children to learn more about themselves and the world around them and it enables children to fully realize their potential. Researchers also agree that constructive play encourages creativity and helps develop a child's personality and makes learning fun [5]. Research has also focused on solitary constructive play with children and the positive benefits or outcomes of solitary constructive play. Some positive outcomes solitary constructive play has for children are emotional development, physical skills, language development, and social information processing abilities, and from the first to the third grade, relatively lower levels of social problems [3]. Researchers have also found that solitary constructive play behaviors have been related to happier moods and increased alertness and rather than immaturity or dependence, solitary constructive play has also been found to be related to maturity and independence [3]. Types of solitary constructive play is described as the repetitive movements of muscles with or without the use of an object and includes activities such as creating artwork, attempting and/or completing puzzles, and construction using blocks [3]. As they create, children begin to understand the nature and properties of a range of materials through constructive play. Constructive play also promotes the development of spatial understandings, including an awareness of how objects can be fitted together and move in space. Children develop mathematical concepts such as numbers, length, weight, volume, shape, and pattern for meaningful and increasingly

complex purposes through constructive play. During constructive play, children have many opportunities to re-create experiences and express their own ideas about the world [4].

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Constructivist Family Therapy

►Constructivist Psychotherapy

Constructivist Psychotherapy

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Synonyms

Constructivist family therapy; Developmental constructivism; Narrative therapy; Personal constructs; Postmodernism; Relativistic philosophy; Social constructivism; Systemic therapy

Definition

Constructivist therapies are theories of change that place clients in the role of meaning makers and active participants in their own lives. There are multiple ways of understanding any one given situation [1]. How each person interprets a situation is influenced by their previous life's experiences. Even then, it is possible to focus on one piece of a situation and apply meaning, but if you change focus, a completely different meaning may be discovered. Constructivist therapies moved away from the deficit model that labels and pathologizes. The therapist's role shifted from an expert, didactic position to one of collaboration and exploring to assist the client in uncovering their strengths and resources. The role of language and meaning making is a large part of the therapeutic process. Lynn Hoffman [5] defined it best.

> In contrast, social construction theory posits an evolving set of meanings that emerge unendingly from the interactions between people. These meanings are not skull-bound and may not exist inside what we think of as individual "mind." They are a part of a general flow of constantly changing narratives. Thus, the theory bypasses the fixity of the model of biologically based cognition, claiming instead that the development of concepts is a fluid process, socially derived. It is particularly helpful for the therapist to think of problems as stories that people have agreed to tell themselves. . .Many styles of doing therapy that would otherwise compete can crowd together under its broad rim, as long as their practitioners agree that all therapy takes the form of conversations between people and that the findings of these conversations have no other "reality" than that bestowed by mutual consent.

Some of the theoretical models based on social constructivism are strategic therapy, solution focused therapy, narrative therapy and collaborative therapy. Jerome Bruner [2] encouraged us to teach our children "an appreciation of the fact that many worlds are possible, that meaning and reality are created and not discovered" (p. 149) Mahoney [7] emphasized that constructivism provides "a metatheoretical home for diverse approaches to psychotherapy." (p. 307) The concept that meanings are created within each of us individually as well as in interactions with others, influences how individuals make meaning of themselves and their lives. The constructivist therapist will work in a non-hierarchical relationship with clients to develop new understandings that will highlight the strengths, resources and talents of each person. As individuals recognize these qualities, the prospect of a more positive future is created. Social constructivists frequently emphasize that small change leads to bigger change [6].

Description

A hallmark of constructivist therapy is that the therapist is not looking for the "real" truth or the need to find the "why" that a problem has occurred. The therapist is an expert in asking questions and being curious. In finding a way to ask circular questions that will in turn lead to

more questions, new perspectives and possibilities emerge. It would be naïve to say that the therapist has no impact on the creation of new understandings. The very act of what the therapist chooses to be curious about creates a certain amount of influence [3]. Many times, clients have created a reality of their situations in their lives and see no other options or solutions. They become stuck and continue to apply the same sort of understandings and solutions to the problems which then escalates the problem, convincing them that there are not other choices and the situation becomes hopeless [8].

An important aspect of beginning the session is to understand that the person is not the problem, the problem is the problem. Thus, it is important to starting with the smallest goal, staying in the present and obtain a clear, concrete, measurable, positive goal that is within the client's control establishes a success strategy. Constructivist therapists believe that each human creates their own meanings both within themselves and in interactions with others. It is important to consider cultural influences, gender and age along with family dynamics as impacting how each person understands their situation. The goal of the constructivist therapist is to empower the client. When considering the aspect of the narrative, the client is creating a reality in how they understand their lives, it is as if they are no longer the hero of their own story. The ability for them to reclaim that leads to self-empowerment. The therapist wants to ensure that the client takes ownership of their own solutions and not credit the therapist. It is also important for the therapist to be open to self-evaluation to avoid imposing their own values on the client [9].

Relevance to Childhood Development

Constructivist therapeutic approaches are an excellent fit for children and their families. Michael White and David Epston developed the narrative approach and utilized externalization as a tool to place the problem outside the child. This means that the therapist is no longer working with an "ADHD child" or "depressed child" or an "angry child." By shifting the language to a "child dealing with anger" or "sadness" or "problem sitting still and paying attention," the therapist has introduced that the child is not "broken" and now the entire family can join forces to help the child overcome the problem [1, 4, 10]. This also introduces the fact that the child no longer has an excuse for the behavior but has to look at taking responsibility for the choices made. Since no problem occurs all the time, the therapist can help the child and family look at times when the problem could have occurred but did not. Frequently this reveals an existing solution that can be utilized consistently. Since developmentally, children have wonderful imaginations, White and Epston documented many cases working with life threatening eating disorders very successfully with this approach [4, 11].

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Constructivist View (Piaget)

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Definition

Constructivism is considered to be a theory of learning, illuminating the processes by which students respond to instruction, and, organize information into individually relevant schemata [1].

Description

Although Jean Piaget (1896–1980) is associated with education and developmental theory, he obtained his doctorate in natural sciences. His work in this field led him to the awareness that biological development was due to environmental variables, as well as heredity. This grounding in science led him to conclude that cognitive development was grounded in environmental adaptation and

organization, and also that cognitive development and biological development share the same basic principles. Human beings have both biological and intellectual components. Both are required in order to organize the experiences of adapting to environmental stimuli [2].

Piagetian nomenclature lists four basic cognitive structures that exist in man – schema, assimilation, accommodation and equilibrium. The use of all four structures is necessary for cognitive development [2].

Schema

Schema is the intellectual counterpart of biological adaptation. Schemata can be likened to categories. New information is constantly being processed and assigned categories. As children grow and develop more, schemata are added based on their experiences. Schemata are constantly being refined and adapted [2].

Assimilation

Assimilation is a cognitive process whereby children attempt to fit new theories and experiences into existing schemata. If a child's first view of an animal was a "cow", henceforth whenever she encountered a new animal, she would say "cow". Parents would present new information – correct name of new animal – which would then be assimilated into the animal schemata. In this way the child classifies new animals into her existing schemata. Assimilation is thus an ongoing process and part of the child's development. Children adapt to, and organize, their environment based on their individual experiences [2].

Accommodation

Accommodation refers to the increase of a child's individual schemata in response to new experiences or information. First, children try to assimilate new information into existing schemata, but if they cannot do this, they create a new schemata, either by modifying an existing schema or creating a new one [2].

Equilibrium

Balance is needed between assimilation and accommodation. Assimilation without accommodation would result in a few very large schemata. The child would have difficulty detecting differences. Accommodation without assimilation would result in a large number of very small schemata. Either extreme is undesirable. Equibrilation is a self-regulated process that uses both assimilation and accommodation to achieve equilibrium [2].

Relevance to Childhood Development

Piaget believed that when new information is connected with prior knowledge and experience, learning occurs. Individuals can also learn and create new knowledge by reflecting on past actions [1]. In a constructivist view, learning is not a direct line from ignorance to knowledge, with knowledge being acquired by having someone in authority deliver facts. This type of acquisition of knowledge exists in a non-constructivist classroom when students memorize facts so that they may regurgitate them on exams. In a constructivist classroom, there would be more active engagement and less "drill and skill" types of learning.

True knowledge, versus data memorization, is not something a student receives from an all-knowing, all-powerful teacher. Rather, a constructivist teacher would create an environment in which the student could explore, investigate and create new constructions under the guise of 'answers'. Presenting students with questions to answer or problems to solve creates disequilibrium. Will this new knowledge fit an existing schemata (assimilation), or, will the student be required to either modify a schemata or create an entirely new one (accommodation) in order to maintain their equilibrium?

As new information is constantly being acquired, the twin processes of accommodation and assimilation occur, leading to cognitive development. Human beings create knowledge and refine it. An example would be the process by which individuals came to learn that the sun did not revolve around the earth, rather the earth revolves around the sun. Scientific data required revised schemata because existing schemata were inconsistent with new information. In constructivism, it is expected that learners will encounter problems they cannot solve with existing schemata [1].

Constructivist strategies that promote cognitive development include cooperative learning, curriculum mapping, anticipatory sets, multiple intelligences, exploratory activities, active discussions, journal writing, and portfolio assessment.

In a constructivist classroom, both teachers and students learn to effectively critique their own ideas and those of others. The shift from traditional to constructivist teaching requires the teacher to spend less time judging answers and more time helping students to become better critics of their own thinking. One goal in a constructivist classroom would be students who would be able to accurately assess themselves. Knowledge is not static but is revised based upon new information that is assimilated by the active learner [1].

Constructivist practice integrates assessment into instruction. Exploration, comparison, evaluation, and analysis are terms often used in constructivist assessment. Skill acquisition and restatement of fact are terms more common to pre-constructivist practice. Student reflection is also part of constructivist practice. Students are given choices of how to demonstrate their understanding, leading to measures of individual growth rather than competition [1].

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Contact

►Tactile Stimulation

Contextual Intelligence

►Practical Intelligence

Contingency-Maintained Behavior

►Extrinsically Motivated Behavior

Continuous Performance Task

►Continuous Performance Test (CPT)
►Gordon Diagnostic System

Continuous Performance Test (CPT)

Synonyms

Continuous performance task

Definition

A psychological test which measures an individual's sustained and selective attention, and impulsivity response patterns

Description

A CPT is commonly used in a battery of other measures to diagnose attention deficit/hyperactivity disorder (ADHD). There are a variety of different CPTs, the two most common are the Conner's CPT-II and the Test of Variables of Attention (T.O.V.A.). Both the Conner's CPT-II and the T.O.V.A are administered on a computer and are fairly simple to administer. The Gordon Diagnostic System (GDS) is also a CPT; however, it is not done on a computer but rather is a computerized machine where individuals have to respond by pushing a button when they see a certain stimulus. In general, a CPT measures correct detection, reaction time, omission errors, and commission errors.

Control

►Discipline

Conventional Level

►Conventional Moral Reasoning

Conventional Moral Reasoning

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Synonyms

Conventional level

Definition

Conventional moral reasoning is the second of three levels of moral reasoning in Kohlberg's Structural Theory of Moral Development, where people have internalized the rules and expectations of those closest to them and generally make moral judgments based on the norms and expectations of their reference group (e.g., family, friends, etc.) [1–4].

Description

Conventional moral reasoning is the second of three levels of moral reasoning in Kohlberg's Structural Theory of Moral Development, a cognitive-developmental approach to moral development that describes six invariant, sequential, universal, and progressively complex structural stages of moral judgment across the life-span [3]. Kohlberg's theory of moral development suggests that as people mature cognitively, they develop an increasingly complex and inclusive view of who deserves justice. The level of conventional moral reasoning follows the level of preconventional moral reasoning and precedes the level of postconventional moral reasoning. There are two stages in the conventional level of moral reasoning, the first of which consists of a less complex and advanced sociomoral perspective than the second [3].

The first stage of conventional moral reasoning, Good-boy/Good-girl Orientation (also known as Mutual Interpersonal Expectations, Relationships, and Interpersonal Conformity) is Stage 3 in Kohlberg's theory of moral development [3, 5]. At this stage, individuals operate from a social perspective of being in relationship with others and focus on prioritizing shared feelings, expectations, and agreements over personal interests. People at this stage do what is right to maintain relationships and live up to the expectations of those closest to them. Following the principles of trust, loyalty, concern for others, and gratitude is perceived as important for maintaining mutual relationships [3, 5]. For example, an adolescent might respond to those within his or her social group or clique with acts of caring, loyalty, and trustworthiness but might not extend such prosocial acts to those outside his or her social circle, potentially teasing and excluding those in another social group or clique.

The second stage of conventional moral reasoning, Authority and Social Order Maintaining Orientation (also called Social System and Conscience) is Stage 4 in Kohlberg's theory of moral development [3, 5]. At this stage, individuals distinguish between a broader societal point of view and interpersonal agreements, as well as understanding the social system as defining and generating rules and roles that apply to everyone. People at this stage focus on doing right by fulfilling their duties and obligations, obeying laws and rules except under extreme circumstances, and contributing to society in order to avoid the breakdown of the social system as a whole [3, 5]. For example, at this stage, an individual would understand the underlying reasoning behind rules, comprehend that rules such as speed limits are in place to maintain order in society, and obey such rules to maintain the organization of society as a whole.

Relation to Childhood Development

Conventional moral reasoning is used by most adolescents, particularly at the high school level. Kohlberg also worked to apply his moral development theory to moral education and educational interventions, with the aim to help children progress to higher stages of moral development. At the high school/conventional level, two relevant applications of Kohlberg's theory include dilemma discussions and Just Community Schools [5, 6]. Dilemma discussions are hypothetical moral dilemmas used in classrooms or peer groups to foster growth in moral reasoning by creating dissonance between one's current stage and a higher stage of moral reasoning [5, 6]. Just Community Schools are small communities that offer high school students an opportunity to participate in a democratic school environment, including community meetings, where students and faculty are given equal voting power on real-life moral issues related to school rules and discipline [5, 6]. Using Kohlberg's theory as a guide, cognitive-developmental moral education interventions provide guidelines for fostering moral growth in students at conventional levels of moral reasoning, as well as other levels of moral reasoning.

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Cooing

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Synonyms

Gurgle; Soft cry

Definition

Cooing is a stage of infants' *prelinguistic* speech development and consists of the production of single syllable, vowel-like sounds.

Description

The verbal behavior of infants during the first year of life is termed the *prelinguistic period* because it does not contain actual words [2]. Common noises during early infancy include crying, cooing, and variations in patterns of intonation. Emerging between 6 and 8 weeks of age, cooing is a stage of prelinguistic speech that is characterized by infants' first noncrying verbal behavior [3]. Consisting of brief, vowel-like utterances, such as "oo," or "aa" sounds, or consonant-vowel combinations such as "goo," cooing provides vocal practice and entertainment to infants, and aides in the development of motor control over vocalizations [1].

Relevance to Childhood Development

Cooing is a spontaneous vocalization behavior that infants typically engage in when they are in a comfortable state, and is also used by infants as a noncrying means to communicate to caregivers [2]. As infants grow older their vocalizations change in both pitch and intensity. At about 3 or 4 months of age, cooing develops into a wide array of repetitive sounds, vowels and consonants, called *babbling*, which is the next stage in the prelinguistic period [1].

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Cooperative Integrated Reading and Composition (CIRC)

►Cooperative Learning

Cooperative Learning

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Synonyms

Complex instruction (CI); Constructive controversy (CC); Cooperative integrated reading and composition (CIRC); Group investigation (GI); Jigsaw classroom (JC); Student teams achievement divisions (STAD); Team assisted individualization (TAI); Teams-games-tournaments (TCT)

Definition

Cooperative learning is a generic term referring to a number of approaches typically designed to foster student learning through creating positive interdependence between students while at the same providing individual accountability.

Description

During the past 50 years, a wide variety of approaches to increasing student learning through the use of carefully planned cooperative activities have been developed and tested in both laboratory and school situations [1–3]. These approaches vary in a number of ways. For example, some are very concrete "recipe-like" procedures designed to be easy for teachers to learn and to implement, whereas others are much more abstract and require considerable work on the teacher's part to adapt and implement in specific classroom situations. Also, some are designed for students of a particular age and for a particular subject, whereas others can be adapted for use across a wide range of age groups and curriculum areas. Finally, some of these approaches combine in-group cooperation with out-group competition, but others do not.

However, cooperative learning approaches also have much in common. First, they typically foster cooperation in small face-to-face groups rather than in entire classes of students. Also, when the composition of the larger class allows it, these small groups are commonly composed of individuals from heterogeneous social backgrounds and with varied ability levels. In addition, cooperative learning approaches emphasize promoting positive interdependence between students. Thus, typically they create situations in which an individual student's success is dependent, to at least some extent, on the success of others in his or her small group. Some approaches emphasize goal interdependence, meaning that students cannot learn what they need to unless others in their group learn what they need to. Others emphasize reward interdependence, in which case students' grades or their attainment of other desirable rewards are influenced not only by what they learn but also by what others in their groups learn. Resource interdependence, in which students must share information or other resources to succeed, and role interdependence, in which students have complementary roles within their groups, are also commonly part of cooperative learning techniques.

Finally, cooperative learning approaches typically include elements intended to provide individual accountability. Mechanisms for achieving this include giving individual tests to students, having students teach what they have just learned to others, and having one group member engage in procedures designed to ensure that all group members understand what is occurring in the group. Conscious efforts are also commonly made to foster effective group functioning. These include specific instruction regarding roles, responsibilities, and appropriate modes of interaction as well as the allocation of class time for discussion, reflection, and feedback on how individual groups are functioning.

Based on a substantial body of research, a consensus has emerged that cooperative learning, when properly implemented, typically yields better learning outcomes than either individualized or competitive approaches [4]. Improved achievement is sometimes found primarily for initially low-achieving or minority students, although many studies suggest learning benefits for students from various backgrounds and with varying levels of initial achievement. Cooperative learning approaches are effective with elementary school children as well as with middle school and high school students, in spite of the fact that young school children may lack important social skills and/or have difficulty understanding the perspective of others.

Cooperative learning strategies often have social and personal benefits in addition to academic ones [5]. One of the most researched of these is cooperative learning's tendency to foster positive relations between students from diverse backgrounds compared to individualized or competitive modes of instruction.

Although the effectiveness of cooperative learning approaches has been clearly demonstrated, it should be emphasized that merely requiring students to work together is not sufficient to dependably yield academic and social benefits. Sometimes students do not have the skills to work well together. Also, diffusion of responsibility and social loafing can cause problems, which can result in little being accomplished or in some students doing a disproportionate amount of work while others do and learn little, if anything. Thus, the actual benefits gained from cooperation depend to a large extent on how the cooperative activities are structured.

Relevance to Childhood Development

Well-implemented cooperative learning strategies are likely to be useful in fostering students' academic and social development, although properly implementing such approaches can take considerable training and effort. In a world in which the ability to work effectively with individuals from different backgrounds has become a sufficiently important skill to be recognized as such in U.S. government reports, cooperative learning approaches are likely to be useful in preparing students to function effectively in the workplace as well as in other realms of life.

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Cooperative Play

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Definition

The term "cooperative play" was originally coined by Mildred Parten in 1932 to describe the "highest level of social play" between young children. This genre of play is considered the highest level of play as both participants combine their efforts, as well as their feelings and ideas, towards a common goal in a "give-and-take interaction" [2].

Description

In the late 1920s, Parten began to observe the free play behaviors of preschool children between the ages of 2 and 5 [1]. She eventually devised a scale of social participation to rank six categories of social behavior. These categories were "unoccupied behavior, onlooker behavior, solitary independent play, parallel activity, associative play, and cooperative play" [1]. Cooperative play occurs in cyclical stages, as one child's behavior acts as a stimulus for the play behavior of their playmate and vice versa [3]. Therefore, each member of the cooperative play team is adapting to their partner's actions and is aware of their progress towards accomplishing the goal of the play situation. Cooperative play is more advanced than imitative

play because each child produces novel responses to the stimuli of their peers, as opposed to merely copying their peers' actions [3].

Relevance to Childhood Development

Cooperative play generally occurs between the ages of 3 and 4 and is reflective of a certain level of social, cognitive, and language development [3]. For example, children must be able verbally describe play behaviors and also be able to react to the verbal descriptions of play from their play partners [3]. Therefore, aspects of both expressive and receptive language communication are used by each child. Cooperative play also requires a certain degree of organization, as members are assigned different roles to complete relatively complex tasks [6]. According to Weininger [6], children can gain an understanding of their self in relation to other children through cooperative play by virtue of the tasks they are assigned (or the tasks they assign themselves), and in the reciprocal interactions they have with other children [6]. As well, through cooperative play, children can learn to predict the "actions, behaviors, or feelings" their play partner expects of them, which is an important skill fostering safe relationships with others in the future [6].

Unfortunately, cooperative play is less likely to occur among children who have certain disabilities. Specifically, disabilities which affect the ability to express/receive verbal messages, moderate emotive responses, read the affective cues of others, and engage in complex behaviors may decrease the likelihood an individual will engage in cooperative play [2]. Children who have not reached a certain level of language development may also have difficulty engaging in cooperative play with other children. For example, children who have an Autism Spectrum Disorder may have difficulty engaging in cooperative play due to their delays in language development, and therefore may not be able to express their feelings and/or ideas to their playmate(s) [4]. Children with mental retardation may not have the verbal and/or non-verbal intelligence to communicate and/or perform the actions necessary to complete the tasks of cooperative play.

Fortunately, cooperative play can be taught to children, including children who have disabilities. Jahr and Eldevik [3] found that if cooperative play was modeled, along with verbal descriptions of the specific behavioral steps taking place, preschool children, including children who have Autism, can learn these skills and generalize them to their own novel situations of cooperative play. Children with disabilities, as well as students without disabilities, can also learn important language, self-help, and communication skills from the behavioral and verbal modeling which occurs during cooperative play [3].

Cooperative play is especially important for children who are disabled as it allows for positive peer interactions with other disabled and non-disabled peers. It is crucial to include children with disabilities in all the social situations experienced by non-disabled children to help them acquire important social skills and allow them to experience the satisfaction of being included in regular peer groups [5]. Social isolation of children with disabilities should be prevented, reinforcing the importance of inclusive classrooms. As children with disabilities mature, it is increasingly relevant that efforts be made to accommodate their need for acceptance and inclusion by their non-disabled peers [5].

In light of the importance and utility of cooperative play, it should be encouraged whenever possible. Several studies indicate that the likelihood of cooperative play occurring between young children depends upon the type of toys which are present in their play environments [2]. For example, "social toys", such as "dress-up clothes" and "giant pillows", are more likely to elicit cooperative play amongst its users than "isolate toys", such as "puzzles" and "toy animals" [2]. Therefore, adults who work with young children and want to encourage cooperative play can do so by providing social toys. Even among preschool children who are disabled, the specific "social" toys selected can influence the degree of cooperative play they engage in with both disabled and non-disabled peers [2]. These social toys lend to ideal situations wherein cooperative play can occur. Ivory and McCollum [2] believe that the cooperative play induced by social toys in inclusive classroom settings can generalize to other aspects of the child's social and cognitive development as well.

Conclusion

Cooperative play is a relatively complex form of social play between preschool children who have reached a certain level of social, cognitive, and language development. While cooperative play may be less likely to occur amongst certain populations, various strategies can be used to teach and encourage these children to engage in cooperative play.

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Coping

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Synonyms

Resilience; Stress

Definition

Coping is the act of managing events or situations deemed as taxing or exceeding one's own personal resources in an attempt to alter the meanings or reduce the ill effects of ►stress.

Description

Literature surrounding the topic of coping follows one of two perspectives; the trait approach and the process approach. The trait approach to coping assumes that an individual's specific response to a stressful encounter can be understood independent of the situational context. The trait approach ignores such important features as individual characteristics and the changing demands of the stressful situation. Studying coping following the trait approach can be better understood as being more heavily concerned with what an individual usually does in stressful situations and maintains that coping is a more static or stable process. A second approach to studying coping is to conceptualize it as a process. The process approach to coping accounts for such individuality and is concerned with what an individual actually does in a specific situation. The process approach to coping maintains that to speak of a coping process implies change. Change not only refers to the adjustment of selected coping acts and behaviors but to the stressful encounter as it unfolds. Lazarus and Folkman [4] stated that coping is a "shifting process" in which the individual must constantly alter his or her position and modify his or her deployed coping responses as the person-environment relationship changes (p. 142).

Once an individual's well-being is threatened the cognitive process of secondary appraisal determines the degree of threat and coping responses are then activated [3]. Researchers have continued to agree upon three higher-order coping dimensions that categorize the different coping strategies. The most frequently used coping dimensions have been problem-focused, emotion-focused, and avoidance coping. Problem-focused coping refers to an individual's deliberate attempt to alter or manage the current problem (e.g., communication, planning, increasing effort, seeking information). Emotion-focused coping on the other hand tends to refer to an individual's attempt to alleviate distress associated with the situation or the emotional resultant of the problem (e.g., self-blame, acceptance, wishful thinking, avoidance, relaxation). Finally, Avoidance coping refers to the individual's behavioral or psychological efforts to disengage from the stressful situation (e.g., walking away, blocking, suppression).

Healthy coping styles are a fundamental component to a healthy lifestyle both physically and psychologically. An individual's chronic inability to cope effectively with stress can lead to a number of pathogenic effects [6]. One reason for this relationship is that the emotional response followed by a stressful encounter can trigger physiological responses which may ultimately lead to an increased vulnerability to a disease. Stress has been linked as a probable etiological agent in instances such as atherosclerosis (e.g., [5]), hypertension (e.g., [2]), coronary artery disease (e.g., [7]), psychological disorders (e.g., [6]), and even death (e.g., [8]). Although all three coping strategies may prove useful in reducing stress, researchers have continued to establish a negative relationship for problem-focused coping and negative affect, as well as a positive relationship for emotion-focused coping and negative affect. This means that the use of problem-focused coping strategies may result in a more positive emotional state and that the utilization of emotion-focused coping strategies may contribute to a generally negative emotional state. These correlations suggest that focusing on the emotional aspects of stressful situations can produce negative affect whereas utilizing coping skills related to problem-solving can prove adaptive thus resulting in a more pleasant affect ultimately reducing the risk of depression.

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Coping–Skills Training

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Definition

Social skills training (SST) is a behavioral intervention used to enable children to acquire a repertoire of developmentally appropriate verbal and nonverbal interpersonal skills so as to enhance successful outcomes in a variety of social situations [4, 5, 7]. Social skills training is often used in the treatment of many psychological and interpersonal difficulties, such as schizophrenia, social anxiety (i.e., ►social phobia), aggression, and depression. SST is delivered in a variety of settings including school-based programs, day treatment facilities, individual, and group settings [1].

Description

The acquisition of social skills follows a basic behavioral process whereby direct observation and ►modeling are typically utilized when first introducing the targeted social behavior to the child. Subsequently, psychoeducation is often presented in conjunction with modeling of the particular skill, be it eye contact, initiating conversation or the like. Psychoeducation and modeling are utilized to provide the child with the necessary information regarding how to perform the social-behavioral response, as well as the rationale regarding the importance of this response in the context of successful social interactions [3, 5]. The use of video or peer-models may be used in this phase of social skill acquisition as learning is typically more likely to occur when the model is of a similar age and background as the child trainee [7]. Ideally, modeling of the social skill should be as realistic as possible, and as with the acquisition of any complex human behavior, it is important to break down the behavior into its sub-component parts in order to facilitate learning. Next, mastery of the particular social skill generally occurs through shaping and behavioral rehearsal, typically employing a variety of techniques such as ►role-playing [1, 3, 5]. Throughout this process of rehearsal, the therapist provides immediate, corrective feedback following deviations from the social skill being enacted. Effective corrective feedback is given in a constructive manner, whereby the therapist/instructor emphasizes positive aspects of the performance in addition to those areas in need of change. Positive reinforcement is an essential component to this corrective process and should follow the successful performance of the given social skill being rehearsed as well as any approximations towards the enactment of the target behavior. Lastly, to increase generalization of social skills to other contexts, the child typically practices these skills in vivo through real-world experiments [3, 6, 7].

In general, social skills refer to a complex set of behaviors utilized within a social context, in which an individual interacts in some manner with his or her environment. These skills are considered vital in both the initiation and maintenance of interpersonal relations [2]. Social skills typically taught are numerous and may include, but are not limited to, communicating needs, cooperating with others, responding in a prosocial manner to peers and adults, making friends, conflict resolution, and assertiveness [2, 5, 7]. In particular, the specific social behaviors taught may include maintaining eye contact, approaching unfamiliar individuals, initiating a conversation, and increasing the child's awareness regarding acceptable personal space. Typically, the set of social skills targeted for change are unique to the child in need of social skills training, as assessment is utilized to identify those particular social delays and/or deficits in the child's behavior repertoire [2].

Relevance to Childhood Development

The child's developmental level must be taken into account during the implementation and selection of target behaviors. Social skills selected for acquisition should be consistent with developmental theory as well as the child's capabilities. A thorough assessment of social development should be conducted prior to skills training. A child's social competence is a significant and ongoing developmental task, present throughout all stages of childhood

development. Consequently, deficits in a child's repertoire of social skills can result in poor developmental outcomes [4, 5]. For instance, deficits in social skills and overall social competence may manifest as a feature of many childhood disorders, as well as exacerbate other disorders common among children [3, 6].

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Copycat Suicides

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Synonyms

Suicide contagion; Suicide epidemic

Definition

Copycat suicides refer to two or more suicides that occur in close temporal proximity and are presumably related.

Description

The notion of copycat suicides developed from research indicating that suicide can be "contagious" in the sense that exposure to suicidal behaviors can influence others to copy these behaviors. Much of the debate regarding this issue concerns the relationship between the media and suicide. Research suggests that the extent of media contagion is modest, although the media can play a crucial role in the decision-making process of vulnerable individuals, particularly in cases involving non-fictional presentations of suicide. Media-related suicide contagion appears more likely to occur when there is a feeling of identification with the suicide victim, when the method of suicide is specified, when a suicide is reported or displayed prominently or dramatically, and when suicides of celebrities are reported.

Given that children and adolescents may be particularly vulnerable to media influences, providing guidelines to the media about the appropriate portrayal of suicide is critical. Some of these recommended media guidelines include (a) avoid sensationalistic coverage of the suicide; (b) avoid glorification or vilification of the victim; and (c) do not provide excessive details regarding the suicide. There is currently inconclusive evidence, however, as to whether media guidelines have had a significant impact on the behavior of media professionals or on attempted or completed youth suicide rates.

Copycat suicides involving children and adolescents may be of particular concern in schools, especially when a student commits suicide. In this situation, two groups of students may be at particular risk for engaging in copycat suicides. The first group consists of students who have engaged in previous suicidal behavior, regardless of whether or not they knew the victim. The second group consists of close friends of the victim. These two groups should be carefully assessed and monitored by school personnel to decrease the risk of suicide contagion.

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Copying

▶Behavior Modeling

Cord Injuries

▶Spinal Cord Injury

Corporal (Physical) Punishment

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Synonyms

Corporal punishment; Harsh discipline; Physical discipline; Physical punishment; Spanking

Definition

The use of physical pain, without intent to injure, as a means of stopping or changing undesirable behavior.

Description

The use of corporal punishment can be found in schools and homes around the world. Studies have shown rates of corporal punishment in the home to be about 90% for toddlers [1]. This number declines throughout childhood, but over 50% of adolescents receive physical punishment in the home [1]. Data from the 2006–2007 school year show that over 200,000 children in the United States received corporal punishment in schools and there were over a million reported incidents of its use every year. There are currently still 23 states that allow the use of corporal punishment in the schools [2]. Two states, Ohio and Utah are sometimes found on the list of states not allowing physical punishment in schools, but Utah will allow it if parental permission is given for its use and Ohio has specific laws regarding school board voting wherein parents may request it not be used in school districts where it is allowed [2].

Physical punishment takes many forms including spanking, slapping, punching, kicking, pinching, shaking, shoving, and the use of a variety of objects such as belts and paddles. The majority of people (over 80% of American parents) support the idea that physical punishment is "sometimes necessary." However, most scientific studies assert that corporal punishment can potentially lead to psychological or behavioral problems later in life [1]. Corporal punishment has been linked to increased risk for depression, suicidal ideation, alcohol and drug problems, and spousal or child abuse [3]. Most data are correlational, however, and more longitudinal studies are necessary to ascertain definitive long term effects of corporal punishment [1]. Parents should be aware, however, that large meta-analyses and studies on thousands of representative households find a significant relationship between alcohol abuse, depressive symptoms, suicidal ideations and the experience of corporal punishment in childhood [3]. Also, much research suggests that physical punishment often unintentionally escalates into abuse. Therefore, organizations like the American Academy of Pediatrics and the American Psychological Association argue against any use of physical punishment with children.

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Corporal Punishment

▶Corporal (Physical) Punishment

Corpulence

▶Obesity

Corpus Amygdaloideum

▶Amygdala

Corpus Callosum

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Definition

The corpus callosum is a bundle of fibres that connect the left and right hemispheres of the mammalian brain. In the eighteenth century, the corpus callosum was considered the sight of the soul. In the early twentieth century, it was thought the function of the corpus callosum was to stop the two hemispheres from collapsing together.

Description

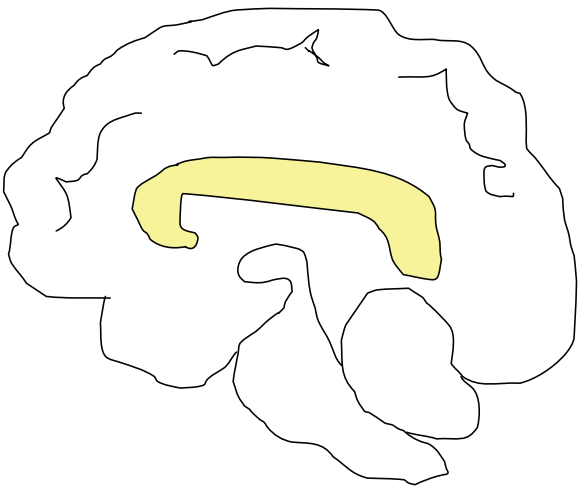
The corpus callosum is a white matter bundle of 200–250 million nerve fibres that allows for rapid interhemisphere communication. It is in the longitudinal fissure and it is the largest white matter structure in the brain (see Fig. 1).

The corpus callosum is made up of four parts; the rostrum, genu, body and splenium. While the corpus callosum is not the only path connecting the two hemispheres, it is the most important. Roger Sperry earned a Nobel Prize when he and his team explored the behavior of individuals who had undergone a surgical procedure to cut the corpus callosum. The rare opportunity to conduct research on the independent functioning of the left and right hemispheres informed much of our understanding about the specialization of the human brain. For example, a blindfolded split-brain participant was unable to name an object when touched with the left hand, but could when the object was touched with the right hand. Each hemisphere controls the opposite side of the body. The right hand is connected to the left hemisphere that is most responsible for language. Although the participant had registered the information when using the left hand, he/she was unable to access the language capabilities required to name the object. Thus, each hemisphere specializes in certain types of information, such as language and spatial perception. It is important for effective functioning that the hemispheres communicate with each other.

Relevance to Childhood Development

Typically, the corpus callosum develops 12–16 weeks after conception and the fibres continue to become more efficient so that by approximately 12 years of age the structure functions as it will in adulthood [5]. There are several related disorders of the corpus callosum that are relevant to childhood development. Agenesis of the corpus callosum (ACC) is complete or partial absence of the corpus callosum [1]. Estimates vary greatly regarding the frequency of ACC, however, it is suggested that it occurs in about 1:4,000 children [5]. Furthermore, 2:100 children with developmental disabilities may have the condition [4]. Hypoplasia of the corpus callosum is a disorder characterised by a thin or underdeveloped corpus callosum and Dysgenesis of the corpus callosum is characterised by malformation of the structure. Disorders of the corpus callosum are diagnosed by brain structure rather than behavior, although there are several common characteristics shared by children with ACC. Typically, individuals with ACC suffer delays in achieving motor, language and cognitive developmental milestones [3]. In addition, they often have a high tolerance to pain, have poor motor coordination, are sensitive to some tactile sensations like food texture and touch, have difficulties with social information like facial expressions and have limited insight into their own behavior. There is no single cause of disorders of the corpus callosum, although disruptions likely occur between week 5 and week 16 of pregnancy [4].

The corpus callosum may also be relevant to the development of children with epilepsy. In rare cases of intractable epilepsy, a child or infant may undergo a corpus callosotomy, in which the corpus callosum is surgically sectioned to control seizures and prevent neuronal deterioration [2]. Research has shown this to be an effective means to stop drop attacks and improve psychomotor functioning. These children may experience limitations in their speech, movement or behavior as a result of the surgery.



Corpus Callosum. Fig. 1 Sagittal view of the brain featuring the corpus callosum in gray.

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Correlation

Synonyms

Correlation coefficient; Correlational statistics; Correlativity

Definition

Correlation refers to a mutual relation of two or more things or parts. Specifically, in statistics it is defined as the degree to which two or more attributes or measurements on the same group of elements show a tendency to vary together.

Description

Correlation is one of the most commonly used statistics, describing the degree of the relationship between two variables. When correlations exist they are classified as either positive or negative. Positive correlations exist when as the value of one variable increases, the value of the second variable also increases, or when the value of one variable decreases, the value of the second variable also decreases. In positive correlation the two variables increase or decrease together, such as weight and height. Typically as a person's height increases so does their weight. A negative correlation exists when the values of one variable increase while the values of the second variable decrease, or vice-versa. This is sometimes referred to as an "inverse" correlation. An example of this type of correlation can be seen with time spent watching TV and grades. Typically, students who get higher grades spend less time watching TV. In statistics, correlations are reported with correlation coefficients commonly symbolized by ρ or r. These coefficients range from -1.0 to 1.0 and indicate both the direction and strength of a correlation. Values close to 0 indicate the absence of a correlation, while values closer to 1.0 indicate stronger levels of correlation or stronger relationships. The negative or positive sign simply indicates the direction of the correlation, positive or negative. Correlation itself does not indicate the presence of a cause and effect relationship. A popular phrase in science is "correlation does not imply causation", which means that one cannot assume that the relationship between two variables is causal simply due to the presence of a significant positive or negative correlation.

Correlation Coefficient

Synonyms

Coefficient of correlation, Correlation

Definition

A statistic that express the degree of the correlation between two measures or variables.

Description

Typically correlations coefficients are symbolized by ρ or r and range from −1.0 to 1.0. When variables are completely unrelated the coefficient will equal zero, while values approaching 1.0 indicate strong relationships. The sign, negative or positive, indicates the direction of the relationship (see *correlation*). The most commonly reported correlation coefficient is the Pearson's product-moment correlation coefficient and is obtained by dividing the covariance of the two variables by the product of their standard deviations. This statistic is used with interval or ratio data. The formula for calculating Pearson's r for a sample is written $r_{xy} = \frac{\sum_{i=1}^{n}(x_i-\bar{x})(y_i-\bar{y})}{(n-1)s_x s_y}$. When working with at least one dichotomous variable the Point-biserial correlation coefficient is the statistic of choice and is calculated as follows: $r_{pb} = \overline{s_n}\sqrt{n^2}$. Rank coefficients, including Spearman's and Kendall's rank correlation coefficient, express the extent to which, as one variable increase, the other variable tends to increase or decrease independent of whether the relationship is linear. Other types of correlation coefficients include Phi and Tetrachoric coefficients. The phi coefficient is use to express the degree of association between two binary variables. The tetrachoric coefficient is a correlation coefficient computed for two normally distributed variables that are both dichotomous in nature.

Correlation CoefficientM

►Correlation

Correlational Statistics

►Correlation

Correlativity

►Correlation

Correspondence

►Media

Corruption

►Dishonesty

Cortex

►Brain
►Neo-Cortex

Cortical Motor Dysphasia

►Expressive Dysphasia

Counseling

►Play-Group Therapy
►Reality Therapy

Counseling Method

►Reality Therapy

Counselors

Synonyms

Child and family therapist; Mental health counselors; Professional counselors; Therapists

Definition

Licensed professionals trained at the master's or doctoral level to help persons cope with personal, social, career, and educational issues.

Description

Counselors are a group of professionals who focus on working with individuals, families, and groups experiencing developmental or situational adjustment issues. Their work is centered on both prevention and treatment of situational and long-standing problems. Counselors are rooted in development and wellness, helping individuals to reach their highest potential and well-being.

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Covariance Structure Analysis

►Structural Equation Modeling

Covariance Structure Modeling

►Structural Equation Modeling

Covert Bullying

►Relational Aggression

CP

►Cerebral Palsy

Craniosacral Therapy

Synonyms

CST

Definition

Craniosacral therapy is a gentle, hands-on method of evaluating and enhancing the functioning of a physiological body system called the craniosacral system - comprised of the membranes and cerebrospinal fluid that surround and protect the brain and spinal cord. This non-invasive form of body work is beneficial for a wide range of health challenges from minor aches and pains to severe conditions.

CST is a healing technique that is practiced by chiropractors, osteopaths, massage therapists, and other health care professionals. The practitioner "listens" with their hands to the subtle rhythms of the body, detecting restrictions and imbalances in the tissues and fluid movement. Using a soft touch generally no greater than 5 grams, or about the weight of a nickel, practitioners release restrictions in the craniosacral system to improve the functioning of the central nervous system. This enhances the natural healing ability of the body.

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Creative Dramatics

►Dramatic Play

Creativeness

►Creativity

Creativity

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Synonyms

Adaptability; Creativeness; Divergent thinking; Imaginativeness; Innovation; Originality; Novelty; "Thinking outside of the box"

Definition

Although a variety of definitions of creativity have been published, commonalities among these many viewpoints state that creativity is the ability to generate high-quality ideas that are both original and useful [14].

Description

Despite creativity's straightforward definition, the collective conceptualization, measuring, and understanding of the subject is rather complex. Much like the concept of intelligence, creativity is regarded as a challenge to consistently define, assess, and understand. Creativity differs among individuals and an unlimited number of means creative expression exist. Creativity is commonly associated with the arts, but is actually reflected in all areas wherein problem solving may occur and therefore has been studied in a plethora of contexts. For these reasons, a dearth of perspectives and measurements of creativity have been adopted and expounded upon since creativity research began to thrive in 1950 [23].

Creative Thinking

A distinguishable characteristic of creative thinking is the intentionality involved when producing a novel thought. Thus, by this definition novelty involves the subject purposely and knowingly creating a novel product. If the subject has prior knowledge of the production of something "novel" and still produces/replicates it, such production cannot be considered creative. Furthermore, creativity is not accidental; a subject that accidentally creates a product that is believed by others to be "creative" cannot be considered to be creative under the definition given above of what "creativity" involves. Once a novel product is produced, does that automatically make the product a creative one? Some researchers argue that novelty is not or should not be the main and only distinguishable characteristic of a creative product. They argue that though novelty is essential, the value of the creative product is also as important. Not all researchers agree with such a stand, due to the socially based meaning and changeability of what value constitutes [31]. Creativity is viewed in two different ways: domain general or domain specific. There is a major debate in the field of creativity as far as where domain creativity stems from. Domain general creativity, as the name suggests, is a type of creativity that is not restricted to one area, but is instead a skill that can be applied widely across many areas, problems, and situations. The second perspective, domain specific creativity, is a type of creativity that can be mainly applied to one particular field, such as an area of expertise. For instance, Pablo Picasso

had a domain-specific creative strength in art. Research evidence suggests that creative performance is connected to expertise in a specific area; however, other research in the field also suggests that both positions are partially right [30].

Models of Creativity

Creativity is a field of many theoretical standpoints and ideologies. There is no singular model that encompasses the many facets present in creativity study. Some models and theories; however, have served to be quite influential and enduring; the précis to follow summarizes these ideas in a manner as to provide a brief account of the conceptualization of creativity and some of the prominent theories that have aimed to understand it.

In 1904, Spearman presented the concept of general and specific intelligence, which has remained central to intelligence theory, and has also strongly influenced the study of creativity [21]. General intelligence, referred to as *g*, represents an underlying mental capacity that drives mental task performance. This type of intelligence; however, lacks an adequate depiction of one's abilities across different areas and subjects. Specific intelligence, referred to as *s*, represents ability in a particular mental task. For example, success in verbal comprehension may cohabitate in an individual that shows weak performance on quantitative tasks. Analyzing separate s factors yields an individual's g; general intelligence cannot be measured without taking into account the areas in which the individual has specific intelligence. The research of Gardner [6] has further propagated and made famous the concept of unique talents and abilities in the individual, with the theory of multiple intelligences. Gardner currently recognizes eight special intelligences that are present at varying levels among individuals: musical, bodily-kinesthetic, logical–mathematical, linguistic, spatial, interpersonal, intrapersonal, and naturalist [7]. Such perspectives are fervent in creativity study, with the belief that creativity is not necessarily an all-encompassing general ability but can also be specific to certain areas; creativity can manifest itself differently and uniquely among people.

In acceptance of the idea that intelligence is multifaceted and specific, Sternberg [22] presented the triarchic theory which included creative ability. The triarchic theory holds that there are three main divisions of intelligence: analytical, practical, and creative [31]. While the analytical and practical components deal with information processing and environmental adaptability, the creative component deals with reactions to novel tasks. Creative intelligence, is described as one's ability to transfer knowledge across situations and activities, in order to make it useful in new ways. A person may be able to easily memorize information or successfully fit in unfamiliar settings, having analytical and practical intelligence, but if they are unable to use their acquired information in a variety of unrehearsed ways, they would therefore lack creative intelligence. According to this theory creativity is an imperative subcategory of overall intelligence and can be displayed in a myriad of ways. Further research has focused on what variables creativity is actually dependent on.

Four ideas, known as the "four Ps": person, process, product, and press, have provided a guideline for creativity research since Rhodes presented them in 1962 [17]. Each dimension: person, process, product, and press, represents a crucial component of the creative process. Person refers to all of the internal processes and characteristics of the individual involved in the creative thinking. Such an idea encompasses biological and personality traits of the individual. Process refers to the actual manner and development of the creative idea, and may research in this area may focus on the stages of the creative process and ways in which to enhance the process. Product considers the actual outcomes and results of the various people and processes that create them. Finally, press refers to all of the environmental factors that are external to the person involved. Press can include a range of variables from governmental restrictions to the temperature outside. These four Ps serve as a model for four broad categories of creativity research: creative people, creative processes, creative products, and effects of pressures on creativity.

Simonton [18] proposed a theory that has emphasized both the importance of the person and external pressure on creativity is that of "little-c" and "big-c" creativity [19]. Little-c creativity is the ability to generate original and useful ideas for everyday problems and situations. Such creativity is considered a component of typical, healthy mental function. Big-c is not a common form of creativity, but a type reserved for those that generate in ways that are remarkably groundbreaking, for example Albert Einstein and Leonardo da Vinci. It is strongly suggested by some researchers that creativity should not be reserved only for the big-c genius, but can be seen in everyone [4].

An early contribution to creativity research was Wallas' 1926 description of the four distinct stages of the creative process: preparation, incubation, illumination, and verification [29]. Preparation refers to one's initial consideration of a given problem as well as their first premature ideas as to how to solve it. After pondering the question, one then leaves the problem and spends their time and attention elsewhere in the incubation stage. After incubating, the illumination stage takes place wherein a new perception or insight about the problem, sometimes

suddenly, is attained. Lastly, the creative process is complete through verification, putting the decided idea or solution in action to solve the original problem at hand. Support for this theory is principally introspective report from people heralded for their creative thinking, but it is seemingly implausible to verify the creative process through applied research.

A famously pioneering contribution to creativity research has been the idea of convergent and divergent thinking by Guilford [10]. These terms embody two dissimilar thinking styles, which lead to dissimilar creative products. Convergent thinking is thinking that linearly derives a clear-cut objective result. For example, the question, "Where is the Eiffel tower located?" is a query that yields one distinct answer, any other answer would be incorrect. Divergent thinking is not linear, but opens many avenues for creative thought. Answers to a question such as, "What are all the ways you can use a bucket?" can lead to an unlimited number of responses that are not restrained by objective correctness, but are more subjective in nature. As answers become more divergent, unusual, or abstract, for example, "A drum in a chipmunk band" and less convergent, for example, "To carry water long distances" the thinker has demonstrated more of an ability to use information in novel and useful ways, and would be considered highly creative by the expert rater.

Creativity according to Guilford [9] was comprised of four basic components including "sensitivity to problems, an ability to produce many novel ideas or solutions, a flexible approach to solving problems, and the capacity to analyze and synthesize a complex collection of ideas." He and his colleagues developed tests to measure such qualities [12].

Another central tenant of creativity research has been the Investment Theory by Sternberg et al. [25]. This theory revolves around an analogy to financial investment. Wise investors are frequently thought to be foolish when buying seemingly unprofitable stock, until the price suddenly rises and then everyone else wishes they had done the same. As such, creative persons are often unappreciated when creating, but when the merit of their effort is finally observed, many people desire the product or idea themselves. The theory applies the old adage, "buy low and sell high" as a term for creativity investment. The creative person is considered creative because they were the first to risk the novel idea, and will already be moving on to a new idea by the time others are clamoring to what may have previously ridiculed.

The aforementioned theories and models of creativity are just some of the bases for which research on creativity and application of creativity is founded. Also pertinent to the subject of creativity is the measurements thereof, cultural influence, neurology studies, and its relationship to intelligence.

Culture and Creativity

Despite the prominence of Western-based study of creativity, creativity study exists around the world and has revealed distinct global patterns as well as variations and similarities across cultures [13]. Creative thinking has been proposed to be, in part, a product of culture, including one's region, language, religion, education, and government.

An example of research conducted regarding creativity and cultural influence is that by Adams in 1976. Participants were presented with the problem of how to remove a ball that is stuck in a tube embedded in cement, with six other people in the room and eight household items [1]. The results of this study led to a conclusion that people have "cultural blocks" that hinder may hinder their creativity in solving problems. For example, certain answers, such as urinating in the tube to allow the ball to float to the surface may not be generate by people whose cultures would deem such an act publicly inappropriate. Also, answers may be culturally driven in how they perceive each household item as a tool, or perhaps the familiarity of items on the list, such as a wire coat hanger or Wheaties cereal, could be in question due to one's upbringing, and therefore people from different backgrounds could solve the problem quite differently.

Although creativity research in a given country is dependent upon the institutional support and cultural perception therein, commonalities among all creativity research have been identified: creativity is the generation of useful and novel ideas or products, that are interesting in some manner; creativity is in some ways general, but with information-acquisition is specific in precise areas; to certain extents, creativity can be assessed and judge; it is possible to develop creativity; and although theory suggests high reward for creativity, this is not always supported in practice [13]. Also, creativity research is homogenous across countries in that it is very underrepresented worldwide. This is suspected to be a result of little governmental support, complexity and difficulty of study, lack of popularity, a rigorous process to becoming a creativity research, and a perception of creativity research as being non-scientific [13].

Relationship to Intelligence

Given that the definition of creativity stipulates an ability to generate high-quality, novel, and useful ideas, one might infer that a strong ability to reason would warrant

stronger creativity. Some studies have shown very weak correlational relationships between creativity and intelligence [15]. Others have shown that creative people are, indeed, more likely to have an above-average IQ; however, people that have IQs of 120 or higher are not necessarily equally gifted in creativity [24]. One can improve intelligence by emphasizing strategies such as combining ideas, breaking through pre-existing cognitive sets and recognizing unexpected relationships which is the basis of increasing one's creative thought processes. Intelligence has four main properties which can be linked to creativity including: complexity, which involves bringing the elements of a set of information into relationship with one another, plasticity refers to the changing of existing cognitive structures, totality, as seen in the relating of new material to existing mental structures, and fluency, consists in moving freely from one idea to the next. Creativity can be thought of as a style of applying one's intelligence [13].

Signs of Creativity in Children

Creativity in a child developmental context is viewed as an essential component of childhood thought processes. Research in the field demonstrates that children's ordinary thoughts and actions have a degree of creativity. Preschool children exhibit creativity through a variety of ways, such as language and ordinary pretense play [8]. First language development in the pre-school years comes not from acquiring a large selection of sentences but instead from the ability to generate an infinite assortment of sentences based on a linguistic rule system that is learned through out. In this way attaining language skills can be seen as a creative process [3]. Children at this stage are likely to use language metaphorically through the creation of new words, and may construct categorical generic phrases. Children's language is considered to be creative if its content and significance are contextually and age appropriate. The use of overextensions in children's language, such as calling a ball a moon, can be a characteristic of a child's creativity. However, it may be the case that such overextensions of language are the result of incomplete knowledge. Nevertheless, if overextensions are deliberate, meaning that the child knows what the name of an object is, yet still calls it something different, this might suggest creativity. Creating generic categories for phrases or the simple act of generalizing are both creative, for they both involve the child to produce new and useful ways to cognitively organize and understand information. Pretense-play also entails a level of creativity, because it not only involves the child to distinguish reality from pretense, but it also allows the child to change reality in unique ways [8].

Further research also suggests that playfulness is a distinguishable characteristic of creative children. Creative children tend to be more playful than the average child, and playfulness is displayed by the child's level of curiosity. Curiosity is viewed as the satisfaction gained by interacting with various new ideas, being able to have a multidimensional perspective on things, and not accepting the obvious as obvious by searching for explanations. These are all viewed as characteristics of creative thinking. It is suggested that a way to enhance creativity in children is by fostering curiosity [28].

Autism research has undergone tremendous growth in recent years due to the surge in diagnosis of the disorder in children. Within this research, the study of this developmental disability and creativity has not been neglected. Findings; however, have proven enigmatic. There are suggestions of both a lack of creativity and imaginativeness in children and adults with autism [2]. Possibly due to irregular integration of social and communicatory information, persons with autism are described as overly literal and concrete thinkers. In contrast, a variety of research also indicates adult men with autism to be more likely to possess creative genius [5]. These incongruous findings may be a result of limits of conventional creativity measures in relation to populations with disabilities.

Development of Creativity

Research evidence suggests that creativity and intelligence are two independent realms, with each possessing their own individual differences [30]. A child with a wide variety and large quantity of schemata, images, concepts, and rules is considered to be intelligent, whereas a child who uses these in an original and even constructive way is regarded as being creative [16]. No direct association has been found between a child's intellectual/academic performance and his/her level of creativity [30]. This in a sense means that anyone can be creative. One does not necessarily have to be intelligent to be creative nor does one need to be creative to be intelligent. These qualities are unique and unrelated to each other [27]. In a study conducted by Howard Gardner, he examined the lives and the work of creative individuals in different fields. These were Pablo Picasso, Albert Einstein, Mohandas Gandhi, Igor Stravinsky, T.S. Eliot and Martha Graham. None of these highly creative individuals, with the exception of Picasso, was a child prodigy. In fact, they all demonstrated intellectual weaknesses at an early age (i.e. Picasso exhibited poor academic performance). The findings of the study suggest that despite these individuals' intellectual weaknesses, each possessed an outstanding domain-specific cognitive strength associated with each

of their specific fields. Additionally, cognitive precocity was not found to be a distinguishable characteristic of children that are likely to produce elite creative works [4].

Present day classroom teachers face many restrictions regarding creative teaching methods. With current laws in place, teaching is based on standardized testing, which results in children being encouraged to memorize and repeat information, with little room of creative expression [4]. Such environmental situations have led to more speculation of an age-old question: can creativity be fostered, developed, and/or taught? Is it possible to encourage creativity in our children?

When considering theories of creativity that suggest that creativity is a result of culture and environment, the answer is surely, "yes". Hayes' model purports that the following steps are necessitated to enhance creativity: development of a knowledge base, a creativity-conducive environment, and searches for analogies [11]. Development of a knowledge is necessary to provide the individual with various sources of information. The ability to draw from diverse fields results in a greater ability to integrate seemingly unrelated information and create novel ideas. Creativity-conducive environments are environments wherein individuals are free to share and express thoughts, to be free to take risks without fear. For example, brainstorming sessions that encourage all possible solutions to a problem to be shared, creates an environment in which novel ideas are likely to occur. Searching for analogies represents the requirement to recognize similarities amongst varying contexts. With search of analogies enabled, the individual constantly relates dissimilar information, making connections wherein others would not see any similarity, and then using those connections to create and solve familiar problems in new ways.

The label of being "gifted" is often given to children with markedly high intelligence and creativity. Gifted and Talented Education (G.A.T.E.) state-regulated programs exist in private and public schools across the United States for the privilege of those that attain an adequately high score on an IQ test or that have demonstrated exceptional creative ability [32]. Some researchers strongly hold that creativity is not just for an exceptional minority, but for all people, and can be fostered in the development of all children [4]. It is contended that although there are not direct methods of teaching creativity, creativity should be modeled for and reinforced in young children, especially in the classroom setting [26]. It is asserted that creativity can be nurtured by helping shape a creative attitude in children: not fearing rejection or resistance from others for their ideas, willingness to take risks and understanding that ideas may not succeed, and accepting creativity as eternally in progress and worth the challenges it presents [20].

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Creativity Assessment

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Synonyms

Creativity measure; Creativity test; Divergent thinking task; I.Q. assessment; Psychometric study of creativity; Torrance tests

Definition

Creativity assessment attempts to measure an individual's potential for creativity, which is defined as one's ability to generate novel and useful ideas. There is no single defining test used to measure creativity.

Description

One way to measure creativity is through self-assessment – simply asking people how creative they are (e.g., Refs. [6, 9]). Many of the major self-report personality tests (e.g., the California Psychological Inventory; Myers-Briggs Type Indicator) include creativity indexes, and the Five Factor Model's conception of Openness to Experience is highly related to creativity [16]. Biographical data can be recorded through self-report measures, asking people to list their creative accomplishments [14]. Self-assessment is appropriate for non-professional creativity situations, but is not considered appropriate for professional situations. Self-assessment is advantageous in that it is quick and easy. However, one disadvantage of self-reporting is the possible falsification of responses by examinees. Furthermore, it relies entirely on personal perceptions, which always contain elements of unreliability. In sum, persons may report themselves much more or much less creative than they are.

A different method that uses personal information to study creativity is the historiometric method, which examines past creative performance. Typically this research is conducted at the eminent level, and focuses on such sources as awards [8], length of career [5], age at accomplishments [19], as well as influence, productivity, and international recognition [15].

Another popular method of creativity assessment is the Consensual Assessment Technique (CAT), developed by Amabile [1]. This method relies on experts of a given field to assign ratings to creative products (such as poems or a collage). These experts tend to agree with each other, thus providing a high level of inter-rater reliability. This technique opens up research beyond self-assessment, but is not wholly conducive for use in most educational contexts. It provides only comparative measurements within the group of products evaluated by a specific group of experts (novices do not work at the same level; see Ref. [12]). It has been shown that the CAT can be extended to creative products produced under both diverse and ecologically valid (as opposed to experimentally controlled) conditions, which potentially expands uses for the CAT [3].

Divergent thinking tests remain the most popular of creativity assessments, with the most-used instrument being the Torrance Tests of Creative Thinking (TTCT; Ref. [20]). The TTCT measures creativity conceptualized as divergent production (e.g., Ref. [7]). The TTCT items revolve around responses to questions with no single specific correct answer. Verbal-oriented questions may ask for different uses of an egg carton or what might happen if all people were born with three arms. Figural-oriented questions might ask someone to modify a circle into an illustration or to finish an incomplete drawing. A participant's responses would then be scored on fluency (how many different responses were produced), flexibility (how many categories of responses were produced), originality (how novel and unique the responses were), and elaboration (how much detail and development was present in the response). The Torrance tests have made a large impact on creativity research as the most-used creativity tests across the world [11, 13, 18, 21]. Although the influence of the TTCT has declined slightly in the last 2 decades, one survey has found that the Torrance tests have been used in three-quarters of all published studies of creativity involving elementary and secondary school students, and nearly half of all creativity studies with college students and adults [21].

The TTCT's reliability and validity have been challenged and debated with scholars arguing both in favor [17] and against (e.g., Refs. [2, 4]). There are issues with the TTCT in that it assumes a creativity-general perspective, meaning

that by measuring creativity on problem-solving type items, we can make assumptions about someone's overall creativity. An alternate perspective is that creativity is domain-specific (e.g., [10]), which proposes that creativity in one area, such as problem solving, does not necessarily translate to creativity in other areas (such as art, and math). At the everyday creativity level, the TTCT's focus may be general enough not to matter. At the non-professional level and higher it may be problematic since it does not allow evaluation into a specific domain that the CAT allows.

While divergent thinking tests offer much to creativity research, additional tests created for a fuller battery of creativity assessment similar to IQ tests would benefit researchers. However, the unanimous acceptance of a single creativity assessment tool is not expected in the near future, given the extensive debate remaining over what an ideal assessment would entail.

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Creativity Measure

►Creativity Assessment

Creativity Test

►Creativity Assessment

Crime, Adolescence

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Synonyms

Adolescent offending; Juvenile delinquency; Juvenile offending

Definition

Crime in adolescence is adolescents violating the law. Adolescents can be charged with both violent and nonviolent offenses, similar to adults. Unlike adults, adolescents can also be charged with ►status offenses.

Description

Recent estimates indicate that at least 50% of all adolescents are involved in some violation of the law each year, ranging from very minor crimes (e.g., truancy) to very serious crimes (e.g., murder). Violent offending is prevalent, with approximately 40% of adolescents reporting

they have engaged in a violent offense (e.g., assault). Approximately one-quarter of those adolescents who have offended violently have multiple violent offenses. Although the majority of adolescents will violate the law, only a percentage will be arrested and prosecuted. Additionally, only a small minority of adolescents are repeat offenders. Even a smaller percentage of adolescents who offend as juveniles go on to offend as adults [1–3].

There are a number of factors that increase the likelihood that an adolescent will violate the law and become involved in the juvenile justice system. First, it should be noted males are arrested more often than females, even though survey data indicate females offend nearly as often as males. Additionally, there is an overrepresentation of ethnic and racial minority adolescents in the juvenile justice system; although, survey data indicate no significant difference in adolescent crime rates between racial and ethnic groups. Other factors that contribute to adolescent crime and adolescent arrest are difficult temperament as an infant, poor parent–child relationships, not having both parents in the home, poor school achievement, the presence of cognitive deficits, hyperactivity, and social disadvantage (e.g., low socioeconomic status) [1–3].

Relevance to Childhood Development

Although most individuals will commit some violation of the law during adolescence, only a small percentage of adolescents will commit multiple crimes during their adolescence. These "repeat offenders" represent between five and ten percent of all adolescent offenders, depending on the type of crime being examined (violent versus nonviolent). Additionally, only a very small percentage of adolescents – approximately two percent – will have multiple offenses that include both violent and nonviolent offenses. The rate of reoffense in adulthood is low, even for repeat adolescent offenders; almost 90% of repeat adolescent offenders do not reoffend as adults. Even adolescents who offend both violently and nonviolently, putting them at an increased risk of reoffense, tend not to reoffend as adults. Approximately three-quarters of the individuals who offend both violently and nonviolently as adolescents do not reoffend as adults [1].

Data indicate it is commonplace for adolescents to violate the law and the majority of adolescents who violate the law will not continue to do so as adults [1, 4, 5]. Consistent with these data, Moffitt has identified a few distinct groups of criminal offenders based on their pattern of offending during childhood and adolescence, including the life-course persistent and the adolescent limited offenders. According to Moffitt's research, there are a small percentage of individuals – life course persistent – who begin to offend criminally as children. These individuals tend to continue offending criminally throughout their adolescence and adulthood. The adolescent limited offenders, on the other hand, offend criminally only during their adolescence. These individuals tend not to reoffend as adults. She posited that the adolescent limited offenders engage in violations of the law in response to their extended period of adolescence. Previously, once individuals were of a certain age, they were given the same responsibilities as adults. In current society, the age at which individuals attain the responsibilities and benefits of adulthood is later in life, therefore extending adolescence. It is in response to this extended period of adolescence that adolescent limited offenders violate the law [4]. Moffitt's work has been confirmed by other researchers [6].

There are a number of risk factors that have been associated with adolescent crime. These include the presence of cognitive deficits, poor academic achievement, difficult temperament as an infant, hyperactivity, poor parenting, poor parent–child relationship, social disadvantages, having antisocial peers, psychological problems such as PTSD, and previous history of arrest. It should be noted that most of these risk factors are static and thus, cannot be changed. Not surprisingly, treatment for juvenile offenders often focuses on altering the dynamic risk factors, such as academic achievement and the parent–child relationship. Another focus of treatment is the adolescent's mental health, as many adolescents involved in the juvenile justice system have psychiatric diagnoses [1–3, 7, 8].

One of the most controversial risk factors associated with adolescent crime is juvenile psychopathy. The adult literature has consistently indicated that individuals with the personality and behavioral traits considered to be indicative of psychopathy are at an increased risk of reoffense [9]. Some researchers have extended the construct of psychopathy to adolescents and have attempted to identify juvenile psychopaths or fledgling psychopaths [10]. There are multiple measures that have been created to identify juveniles with psychopathic traits, including the Psychopathy Check List – Youth Version (PCL-YV) and the Antisocial Processes Screening Device (APSD). Others have used existing measures of personality, such as the Millon Adolescent Clinical Inventory (MACI) in an attempt to identify adolescents with psychopathic traits [11]. Nonetheless, there are significant risks with identifying adolescents as fledgling psychopaths, including the possibility of a labeling effect and self-fulfilling prophecy.

There is also a concern that research has not shown conclusively that adolescents with traits consistent with psychopathy will go on to become adult psychopaths [12]. Thus, the identification of adolescent psychopaths remains controversial.

Consequences of Adolescent Offending

The initial purpose of the juvenile justice system in the United States was to provide treatment and rehabilitation for the juveniles who offended; it was not meant as a punishment [1]. However, in the past 50 years, the juvenile system has moved away from the treatment model and towards a punitive, adult-like model. This includes trying juveniles in adult courts. For example, all 50 states and the District of Columbia provide for ways for juvenile justice cases to be transferred to adult criminal court. Transfer to adult court was intended for only the most violent and severe adolescent crimes (e.g., murder) and results in adult-punishment for crimes. For example, prior to 2005, juveniles ages 16 and 17 who had committed a murder were able to be sentenced to death [1–3]. Now, with the passage of the Adam Walsh Act, juveniles age 14 and above who offend sexually can be placed on a sex offender registry for a period of 15 year to life depending on the severity of the sexual offense. Thus, adolescent criminal offending, at least adolescent sexual offending, can have life-long consequences [13].

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Criterion-Referenced Assessment

►Curriculum-Based Assessment

Criterion-Referenced-Curriculum-Based Assessment

►Curriculum-Based Assessment

Critical Health Psychology

►Health Psychology

Critical Thinking

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Synonyms

Information processing; Logical reasoning; Memory; Metacognition; Problem-solving; Rationalizing; Reasoning; Reflective judgment; Thinking

Definition

Critical thinking refers to individuals' ability to engage reflectively in high-level information processing and entails producing, evaluating, and reflecting on the evidence, facts, syllogisms, and reasoning.

Description

Thinking involves the process of perceiving, storage, processing, transforming, retrieving, remembering, and using information storage in the memory. The process of thinking starts with perception of stimuli, processing the information in the working memory, storage them in the long-term memory, and retrieving the information when it is needed. Individuals think about actual objects such a dog or imaginary objects such as Peter Pan. However, thinking reflectively and evaluating evidence is a unique characteristic of human beings. Children and adults do not act only based on impulse and instincts; rather, they think reflectively and productively. They could evaluate their own thinking as well as those of others presented to them in written, verbal, concrete, or abstract formats.

Critical thinking is an ability that could be learned and taught by caregivers and teachers. However, a controversy related to critical thinking is whether teachers could indeed teach critical thinking [6]. According to supporters of teaching critical thinking, it fosters reading, writing, speaking, listening, metacognitive skills, comprehension, and achievement [4]. In contrast, Hirsch [1] proposed that critical thinking should not be thought because those skills do not transfer and learners continue falling into logical fallacies.

According to King and Kitchener [2], *epistemic cognition*, which is the ability to identify ill-structured problem related to beliefs, values, assumptions, and misconceptions, is the foundation of critical thinking. The process of critical thinking takes place in *inductive reasoning*, which is reaching conclusions by building new knowledge, or by *deductive reasoning*, which is reaching conclusions by previously known information. According to Piaget [3], critical thinking skills mature during the concrete operational stage of development, in which children are able to solve concrete problem in a logical manner. However, critical thinking flourished during the formal operational stage, in which adolescents are able to solve abstract problems and their thinking follows. Zimmerman and Rosenthal [7] demonstrated that critical thinking skills could be acquired through social learning and modeling at an earliest age than the one proposed by Piaget.

Relevance to Childhood Development

Caregivers and teachers help children to explore situations, engage in questioning assumptions, or evaluating problems to deal with hypothetical or real situations for which they will need to use all-important information available to them. Critical thinking skills rely on criteria provided to the individuals or are self-generated. The process of critical thinking is self-corrected, and is sensitive to context, beliefs, values, and history of successes.

Critical thinking involves more than just remembering the information. According to Santrock [5], during childhood, this reflective process involves asking how and why information is obtained and a situation interpreted. It examines whether facts are sufficient to support conclusions and whether the arguments are substantiated enough. Critical thinking entails the possibility that there is more than one point of view or explanation and it compares multiple positions in order to reach the most solid conclusion and alternative. During adolescence, maturity of critical thinking skills is essential. However, critical thinking skills that are not developed during childhood may not mature during the adolescence. During adolescence, it is observed an increase in capacity for processing information, greater domain of knowledge, ability to use learning strategies, logical thinking, and reasoning.

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Cross-Cultural Research

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Definition

Cross-cultural research is used to refer to the systematic comparison of two or more cultures.

Description

Although culture is a widely used term, its definition is still controversial. As early as 1952, Kroeber and Kluckhohn [18] had already listed 160 definitions of culture found in anthropological literature. This is not surprising because culture is an abstract term covering various types of phenomena and preferences regarding its definitions are related to the investigator's theoretical orientations.

Culture can be defined as a "learned and shared pattern of behaviour which is characteristics of a group living within fairly definite boundaries ... interacting socially among themselves" [2, p. 9]. Culture may be explicit, as shown by observable behavior or by the use of valued objects, and implicit as manifested through values, beliefs, and attitudes. Cross-cultural psychology may generally be defined as an area of psychology which includes culture as one of the variables, or more specifically it can be defined as the method by which psychological phenomena can be compared systematically in different cultures [29]. Although it only emerged as a discipline in psychology about 50 years ago, its origin can be traced back to the nineteenth century. Wilhelm Wundt, the founder of experimental psychology, directed psychologists' attention to the importance of ethnographic factors for a better understanding of the thought, belief and action of man, through his work on Voekerpsychologie (Ethnopsychology). He believed that the study of psychological processes should be done outside the laboratory. Wundt also stressed that thinking is heavily conditioned by language, customs and myth.

Cross-cultural psychology is of great importance because it helps us "check the generality of our existing psychological knowledge, theory, laws and propositions and help to decenter psychology and to dethrone its Euro-American, White and middle-class ethnocentricity" [3, p. 5]. It is important for other reasons such as (a) investigating the cultural basis of psychological processes; (b) examining the possibility of applying psychological knowledge of one culture to another, and identifying the problems involved in the process; (c) testing the usefulness of standardize instruments for use in different cultures and finally (d) improving the validity of these instruments.

Problems of Cross-Cultural Psychology

Doing cross-cultural research is not without methodological problems. While some problems may differ from one study to the other or from one culture to the other, others are common across studies and cultures.

Emic-Etic Distinction

The emic-etic dichotomy, coined by an anthropologist linguist – Kenneth Pike (1966) comes from the suffixes of the word phon*emics* with is the study of units of sound having discrete meaning within a language, and phon*etics* which is the study of elements of sound found in the language of the world. The emic approach is cultural specific since it deals with the meanings and patterns of behavior within a single culture based on its own rules and values. The etic approach is cross-cultural because it focuses on behavior from a universal perspective by applying the same concepts and methods to different cultures and is aimed at generating a general hypothesis or theory [6]. Some authors [22] have suggested that both etic and emic items be included in the instruments used for cross-cultural research because investigators who use the etic approach may run the risk of using stereotypes of the dominant culture; other authors however do not consider the emic-etic distinction as important because the differences are often abstract and unclear [13].

In terms of creating instruments which allow the integration of emic and etic concepts within cross cultural research and analyses, the EMIC (Explanatory Model Interview Catalogue) has been established in cultural epidemiology over the past two decades (see [21], 1997, 2001). This framework based on Kleinman's [17] notions of explanatory frameworks grounded in medical anthropological work in health and illness experience across cultures pulls together several conceptual and methodological strands. Conceptually it performs the function of integrating the emic and etic distinctions – essentially drawing on Pike's (1966) work, so that within research on for example illness experiences, it is possible to gain insights not only from the "externally" sourced set of ideas which are often imposed on research participants, but also the "culturally inside" informed view of the experience. As such, instruments such as the EMIC, which have been tested and used in a variety of epidemiological arenas globally have yielded important and insightful information about how illness is perceived, help may be sought, and crucially for stigmatizing conditions such as mental illness, how people react to the disclosure of such conditions [23; Weiss et al. 2001]. Cross culturally of course this is useful because research can gain an empirical foothold in understanding conditions across several cultures, by integrating etic and emic understandings and ensuring that concepts used are both locally pertinent and valid, and can also be framed within larger epidemiological arenas, thus facilitating illness intervention. Methodologically it functions as an epistemological bridge allowing the integration of quantitative and qualitative measures.

This is carried out by the establishing of an instrument which queries categories of illness experience in a quantitative fashion, along the lines of conventional quantitative field survey methods (apart from the fact that the categories used are informed and indeed created on the basis of field work and ethnographic studies prior to the study), but then using narrative queries and qualitative analysis therein, allows a more in depth elicitation of information to occur. These quantitative and qualitative elements are connected so that it is possible to gain a picture of the extent of a particular dimension of an illness within and across groups, but it is also possible to gain a qualitative insight into the specific components of this data for a qualitative understanding.

Equivalence

If comparisons are to be legitimately made across cultures, equivalent bases (defined as the similarity in quantity, value and meaning between assessment procedure) upon which to make such comparisons should be established [20]. There are four kinds of equivalence: (1) Functional equivalence refers to the relationship between specific observations and the interferences made from these observations; (2) conceptual equivalent refers to the meanings individuals attach to specific stimuli or concepts; (3) metric equivalence is related to establishing equivalent scores obtained with an instrument in one culture to those obtained in another cultures; and (4) linguistic equivalence is related to the language used and hence to translation.

The key to establishing linguistic equivalence includes the use of the bilingual approach, the committee approach, pretesting, and back translation techniques [6]. (a) In bilingual approach, the participants (who are bilinguals) complete both language versions of an instrument so that the discrepancies and non-equivalent meanings can be identified; (b) The committee approach involves having a committee of bilingual consultants evaluate the translated questionnaires. This approach however does not control for shared misconceptions and the fact that some consultants are hesitant to criticize the suggestions of other consultants. (c) In the pretesting techniques, the investigators randomly select items from the translated instrument and ask a probing question about each of these items. This approach tends to be expensive when several language translations are used; (d) Back translation is the most commonly used method for establishing linguistic equivalence because it does not have the problems inherent by a bilingual translator (language A to language B) and then by another bilingual person who blindly translates it back into the original language (language B back to language A). Both the original and back translated versions of the instruments are then evaluated for equivalence to ensure that they are meaningful to target language monolinguals. Differences in responses to the items of the original and back-translated versions of the instrument signal the need to examine the translated items.

Types of Cultures

A major distinction between individualistic and collectivistic cultures is the hierarchical relationship between the self and the society [11]. In individualistic cultures high emphasis is placed on the self (i.e., by being independent) and that social behavior is largely regulated by personal goals, likes and dislikes. Conflicts and confrontations within the group are acceptable and are seen as desirable because they "clear the air." The main aim of the socialization is the promotion of individualism, including independent, freedom and autonomy.

In collectivistic culture, high value is placed on kinship, conformity and submissiveness. Social behavior is largely determined by group norms; should a conflict between personal and group goals arise, it is socially desirable to give priority to the group goal over the personal goal for the sake of preserving group integrity and harmonious relationship among group members [28]. Harmony and face-saving are important attributes among collectivists. The main aim of socialization is the maintenance of harmony and cooperation.

The individualism-collectivism distinction has been criticized because, by focusing on the different emphasis regarding personal and group goals, the dichotomy may overlook certain values that serve both personal and group interests [25]. Moreover, placing people on the individualistic or collectivistic dimension can be misleading because it assumes that each pole represents certain values that are in opposite directions [25].

While the notion of cross cultural research can and indeed has been taken as a taken for granted conceptual "package," it is certainly the aim of critical social and psychological analyses to explore the constructions and employment of "culture" and "cross-cultural."

We can therefore take cross-cultural research at its most reduced and simple level – that groups of people who are in a series of ways categorized as belonging to specific cultural groupings can be accessed and researched in comparison to other groups. This then is the most basic level of description we can work with, and raises several important issues. Firstly, sociological, cultural and anthropological theorizing has made the very definition of culture a problematic enquiry, and within the context of post-colonial discourse has endeavored to ensure that

when "culture" or "cross-cultural" is involved in discourse, there is an engagement with the socio-historical, political and cultural constructions.

When notions of moving across cultures are invoked, there must be clarity therefore in defining what exactly is being referred to in the terms "culture," and as Williams (1983) has stated, it is one of the most complicated words in the English language – the situation has changed little in the several decades since. What has changed however is the progress made by various academic and intellectual arenas in ensuring that its usage is purposeful and analytically clear, as well as retaining all the fluidity it requires to express its location in lived, everyday social and cultural lives. As Bockock [5] illustrates, the emergence of the term culture as a symbolic dimension and social practice (i.e., culture as something that is *done*, rather than something that *is*. This has particular relevance in relation to the points above regarding language equivalence in cross cultural research. Culture therefore involves the idea of language being a crucial social practice allowing people to share a commonality in communication systems, in other words, people can communicate meaningfully with each other.

The simplistic use of culture (and terms such as ethnicity) as static and unchanging has been vigorously critiqued [1, 4, 27]. As reified markers of difference they can lead to what Ahmad [1] has suggested is a loss of fluidity and dynamicism. There is also the resultant loss of explanatory power in research, caused by rigid notions of what it means to belong to a specific cultural and/or ethnic grouping and the assumed related behavioral mechanisms involved [14]. Within cross cultural research care therefore is needed to avoid these conceptual and practical pitfalls, as Lambert and Sevak argue, "culture is made as much as given" [19, p. 149] pointing to the conceptual fluidity which takes into consideration new circumstances, life events, observations and information. Without this context, often health and illness conditions are explained in terms of cultural difference without acknowledging the many other facets of social and economic experience, such as inequalities, and can prove to be a diversion away from more insightful in-roads to experience.

Helman succinctly states "culture can be seen as an inherited 'lens', through which the individual perceives and understands the world. . ." [10, p. 2] – and cross-cultural research aims to analyze the view from within and outside these lenses.

As a further cautionary note, Gunaratnam has reframed some of the complexities of cross cultural research by identifying what she calls "insecurities of meaning" [9, p. 137]. The need to work across cultures requires the establishment of meaning across them, and this has often led to the assumption that there is a pre-established reality which can be reflected in language. Cross cultural research on this basis then has as its goal the grasping of that reality as fully as possible [24]. This overriding need for shared meaning can, as Shields [26] argues ignore forms of power relations in the research settings, and obscure the dynamic and context driven nature of "culture."

Cross cultural research is useful across a range of areas, and as raised earlier, Kleinman's anthropological work has been notable in this arena for the combination of researching psychiatric morbidity across cultures using a medical anthropology framework. This type of 'clinical social science' [16] has been utilized in several countries where mental illness across cultures has been the subject of research and investigation. The underlying theoretical basis that grounds this work is the anthropological and sociological conceptual distinction between *disease* and *illness*, the former being rooted in traditional biomedical notions of biological and physiological malfunctioning. The latter is the personal, interpersonal, and cultural reaction to the disease. Eisenberg's [8] early distinction between these two entities is still the basis of much research into health, and also has particular purchase when examining cross cultural ideas. Because of the socially and culturally embedded nature of illness – psychological or otherwise – cross cultural research needs to be informed by a variety of critical disciplines which can perform the function of illuminating experiential arenas from both within and outside the experience. Practitioners and theorists alike can then begin to unpack what exactly it is we mean by cross cultural research and plan health psychological and somatic health interventions that have both utility and meaning.

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Cross-Cultural Studies

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Definition

Cross-cultural studies are research designs that compare human behaviors across two or more cultures.

Description

Cross-cultural studies involve the systematic comparisons of different cultures that aim to understand variations of human behavior as it is influenced by cultural context. This research approach is primarily concerned with examining how our knowledge about people and their behaviors from one culture may or may not hold for people from another culture [1].

Cross-cultural studies share methodological similarities as any other scientific research study. However, a specific methodological parameter that differentiates cross-cultural studies from other research studies is the sample; specifically, the participation of individuals from different cultural backgrounds. In effect, this methodological distinction reveals the philosophy that cross-cultural studies bring to scientific research. As Matsumoto and Juang [1] have noted, "cross-cultural research not only tests similarities and differences in behaviors; it also tests possible limitations of our traditional knowledge by studying people of different cultures. . .the cross-cultural approach is concerned with understanding truth and psychological principles as either universal (true for all people of all cultures) or culture-specific (true for some people of some cultures)" [1].

Theoretical Orientations in Cross-Cultural Studies

The above distinction of principles in cross-cultural research can be conceptualized by the etics and emics

concepts, which were originated in the study of language by Pike (1954) and used by Berry (1969) to describe aspects of behavior as either universal or cultural specific, respectively [1]. Etics and emics approaches gave rise to a debate regarding theoretical perspectives in cross-cultural research. These theoretical orientations in cross-cultural studies have been identified by various writers in the terms of absolutism, relativism, and universalism.

Absolutism refers to a general orientation that says behaviors and the underlying processes that influence behaviors are essentially the same across cultures. In general, the assumption is that people everywhere are pretty much alike and the role of culture in behavior variation is limited. In contrast, the relativist position claims that human behavior is culture specific and should only be studied within culture. It assumes that behavior is influenced solely by cultural variation and pays little attention to any other factors. The position of universalism adopts and combines the working assumptions of both absolutist and relativist orientations. Specifically, universalism holds that the basic processes underlying behavior are common in all humans, though their manifestations are likely to be influenced by cultural factors.

Types and Methods of Cross-Cultural Studies

The debate on the theoretical orientations in cross-cultural studies has also a relative parallel on the methodological level of cross-cultural research, expressed in qualitative versus quantitative methodology. Qualitative methodologies are prominent in cultural research and mostly conducted by cultural anthropologists in the form of ethnographies. Ethnographies involve observation and field-work within the cultural context and require descriptive qualitative analysis. Despite the richness of information obtained from qualitative research the issue of validity plagues this methodology also in cultural research. Berry et al. illustrated the limitations of qualitative methodologies in the following; "experiment and measurement are de-emphasized; reality is portrayed as subjective, and the person of the researcher, including the values he or she represents, are made part of the research process. Moreover, the focus is on the construction of meaning rather than on the explanation of behavior or underlying psychological processes. . .By virtue of the absence of standardized and replicable methods, the entire research process (selection of events, assessment, and interpretation) to an important extent becomes concentrated in the person of the researcher" [2].

On the other hand, quantitative methodologies are mostly used in cultural comparative studies and follow the traditional model of hypothesis testing with comparable samples, using standardized procedures and measures, to obtain scores that are quantitatively analyzed. Van de Vijver and Leung [3] distinguished four common types of comparative studies. The first distinction in these types of cross-cultural studies is the orientation between hypothesis testing and exploration studies. Hypothesis testing studies are based on theoretical conceptions and data have to be gathered from various cultures to test the hypotheses derived from the theory. In studies oriented towards exploration the research study is driven by the instruments used in order to evaluate differences on some scale by collecting data from individuals in two or more cultures. The second distinction is whether studies consider contextual factors or not, that is, whether cultural factors would be included in the study and their relevance accounted for the obtained findings [3].

Although a distinction has been made here, and an ongoing debate exists regarding the use of qualitative and quantitative methodologies, they do not necessarily need to be mutually exclusive, but rather complementary.

Theoretical and Methodological Issues in Cross-Cultural Comparative Studies

In this section issues regarding cross-cultural comparisons studies are presented, since these are among the most common procedures used in cross-cultural research. Most of the issues in cross-cultural research are also a concern of all scientific research with humans and behavior; however, some additional issues pertain solely to the conduct of cross-cultural research, which in turn increases the challenge of carrying out such studies.

Two concepts that are of significant importance in the conduct of cross-cultural research are bias and equivalence. Bias refers to the common problem in the assessment of nonequivalent groups that scores obtained in different cultural groups are not an adequate reflection of the groups' standing on the construct underlying the instrument. If scores are biased, their psychological meaning is group dependent and group differences in assessment outcome are to be accounted for, at least to some extent, by auxiliary psychological constructs or measurement artifacts. A closely related concept is equivalence which refers to the absence of bias and hence, to similarity of meaning across groups [4].

Van de Vijver [4] identified three sources of bias in cross-cultural research. The first is called construct bias; it occurs when the construct measured is not

identical across groups. The second is called method bias, and can result from sample incomparability, instrument characteristics, tester and interviewer effects, and the method of administration. The third is called item bias, and can be due to anomalies at item level (e.g., poor translations) [4].

Similarly, Van de Vijver and Leung [3] identified four different types of equivalence. The first type is labeled construct equivalence. It amounts to comparing constructs that have the same meaning in all cultures under study. The second is called structural (or functional) equivalence. An instrument administered in different cultural groups shows structural equivalence if it measures the same construct in both groups. The third type of equivalence is called measurement unit equivalence. Instruments show this type of equivalence if their measurement scales have the same units of measurement and a different origin (such as the Celsius and Kelvin scales in temperature measurement). The fourth type of equivalence is called scalar (or full-score) equivalence. In scalar equivalence direct comparisons can be made and it is the only type of equivalence that allows for the conclusion that average scores obtained in two cultures are different [3]. For a comprehensive review on sources of bias and types of equivalence the reader is referred to Van de Vijver and Tanzer [3, 5]. In addition, linguistic equivalence is considered when conducting studies in multiple languages. Versions of an instrument in different languages show linguistic equivalence if these have the same characteristics that are relevant for the measurement outcome such as meaning, connotations of words and sentences, comprehensibility, and readability [4].

Earlier on an emphasis was given on the methodological parameter of sample selection in cross-cultural studies. Indeed, this primary distinction of cross-cultural studies from other research studies is of major importance and particular attention should be paid since it is not always carried out without errors. Specifically, and most often, cross-cultural researchers obtain samples of individuals from different countries and automatically assume that the participants are representative of the culture they intend to study. Two issues are noted here; firstly, countries do not always amount to culture. Culture is defined by most cross-cultural scholars as the set of attitudes, values, beliefs, and behaviors shared by a group of people, but different for each individual, communicated from one generation to the next [1]. The second issue is whether the specific sample of individuals selected is representative of the particular culture. A question arises; are the characteristics of individuals selected from a particular location of a country, the same as other individuals in other parts of that country? Matsumoto and Juang [1] objects and cautions to the, "unrealistic and unacceptable assumption of homogeneity among group members (that) can only serve to perpetuate stereotypic impressions and interpretations based on the findings" [1].

To address the issue of sampling in an ideal manner (randomly access all members of any given cultural population), especially in cross-cultural studies, would be a huge and taunting task regarding effort and cost. Consequently, the real issue is whether researchers undergoing cross-cultural studies have a grasp on the difficulty of achieving this ideal and on exercising the relevant caution when attempting to interpret the findings obtained from cross-cultural research.

Conclusion

Cross-cultural studies main importance is to advance and expand our knowledge beyond the confinements of our particular surrounding context, encompassing a universal perspective in understanding human behavior. Cross-cultural research provides benefits that transcend the limits of the traditional research approaches. Theory and method of cross-cultural studies provide a framework in which cross-cultural research is developed, along with the challenging issues that cross-cultural researchers face when conducting such studies. Many of those issues are simply extensions of the general scientific research with human behavior, and others are specifically pertinent to cross-cultural studies. Despite the problems and limitations, the benefits and advantages of cross-cultural studies far outweigh the difficulties.

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Cross-Culture Perspective on Bereavement Springer

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Synonyms
Grief; Mourning; Sadness

Definition
The reactions to bereavement or loss of loved one from death or loss of a relationship. These feelings of loss may bring about grief.

Description
Various cultures have diverse ways in the way they experience bereavement. There are many ways that grief or mourning may be expressed. In the United States, for example, the families of the deceased may continue to talk about the person as if he or she were still alive. The cross-culture perspective on bereavement depends upon various ways cultures suffer losses. There can be phases of natural grief that may be universal (Bowlby and Parkes, 1970); these are described as feelings of numbness, desire, longing, seeking combined with incompetence, inadequacy and anguish. Grief is not an illness and various individuals may need time to recoup their loss. Some people are never able to totally feel whole again. Cross-cultural differences transcend culture in expressions of grief. What may be normal for the way one person reacts to suffering may be abnormal in another. There are healthy and unhealthy ways in which people respond to the grieving process. In Kaliai, people describe death by suicide or violence as magic or sorcery. Some cultures believe that the dead continue to live on in another world. The Balinese never display any grief. In Mexico, The Day of the Dead is celebrated. Many cultures also see the ghosts of their loved ones. African Americans grieve more openly in comparison to other cultures in the United States. Mutilation is also common in some cultures. In India, a widow may burn herself to death at the funeral pyre of her husband. In Bumbita Arapesh, a young man bereaves 10 years after the death of his father because of his belief that no one could show him how to live as a successful adult. The son also felt in some way it was his fault that his father had died because he did not protect the father when he was sick against evil sorcery. The questions remain how people grieve, what is the meaning of death and how one remembers or forgets the loved one and it varies from culture to culture and person to person. A broader focus on religions in culture will play an important part in the cognitive process in the existential adjustment of the mourner. One element that helps with bereavement is to have a personal narrative of the death of the loved one. If a person dies of old age most often there is an acceptance of growing old and living a long life. Those who may die suddenly (i.e., a car accident) allows family members to reflect on whether the person had not been driving or had not left the house. As an example, a young couple had to travel a long distance and had a car accident; the wife died upon impact. While preparing for the funeral, a note was found on her computer explaining how she would want her funeral arrangements to be accomplished. This letter gave the family a personal narrative because they thought the women had somehow known she was going to die. They also had a religious belief that the earth had a veil over it so that people could not see into the next life where the dead live in another realm. They believed that her spirit would live on forever and that they would be together in the life after death. They celebrated her death into the passing on to the next life.

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Cross-Race Friendships

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Synonyms
Interethnic friendships; Interracial friendships

Definition
Cross-race friendships are personal relationships based upon mutual affection, caring, concern, and/or trust that occur between individuals of different racial backgrounds.

Description
The most basic definition of cross-race friendships is relatively straight-forward and easily described. In kind,

these types of relationships are not all that different than any other friendship circumstance in that they are characterized by the universal elements of friendship: interpersonal connectedness, mutual caring and concern, and fondness, to name a few. However, these scenarios move beyond the fundamental notion of friendship within many societies due to historical, social, and political meaning-making systems. That is, cross-race friendships frequently represent more than the relationship between the two individuals, but rather how these relationships are viewed and interpreted (i.e., either accepted or rejected; fostered or discouraged) is symbolic of and influenced by broader, societal nuances and themes that relate to race relations.

Race: A Socially Constructed, Biologically Triggered Concept

A more in depth analysis of cross-race friendships begins with a general understanding of race. Race is frequently considered to be a purely biological construct and a variable rooted in genetics; surmised from parental genotype and subsequently revealed through an individual's physical appearance (i.e., phenotype). And while there is clearly some link between parental genetic contribution and eventual physical appearance, the full reality and meaning of race moves beyond perceived appearance, an increasingly less than foolproof method of determining lineage and cultural background with a growing multiracial population, and ultimately into socially constructed definitions. In short, an individual's perceived appearance triggers interpretive tools which subsequently give "the biological" cultural meaning; that is, biology triggers socially constructed meaning and interpretation. A society's racial ideology is rooted in what Omi and Winant [10] term "racial etiquette", which is this set of interpretive codes; codes of behavior, attitudes, values, and beliefs. These culturally defined codes offer meaning to physical characteristics; for example, describing someone as "black" in the United States means something very different than "black" in Australia, South Africa, or Kenya.

Present day racial ideology has to be understood through its earliest sociohistorical lineage. Racial appearance, social hierarchy, and power have been interrelated since early European exploration (and later colonization), that resulted in contact with a number of indigenous societies, who were universally deemed as primitive and inferior. Race and overt appearance were not only used to distinguish the (White) Europeans, with all of their "positive" traits and qualities from all others, but it also became the means and "marker" from which infer a host of innate characteristics about groups and individuals. "Scientific" evidence and justification of this designation and hierarchy was provided by early biological theories, such as those of: Carolus Linnaeus, whose *Systema naturae* (1735) presented a classification system for plants, animals, and minerals; and Charles Darwin, who's *Origin of Species* (1859), set forth the theory of natural selection ("survival of the fittest"). Racial appearance became "an outward mark of innate and permanent inferiority" [14].

As societies around the globe took shape under the framework of colonization, a racially-based "system of appearance" developed that was more rooted in social, economic, and political forces, and whose implementation simultaneously led to societal and individual discrimination, both of which maintained a social hierarchy [10]. Simply put, humans gave race and racial appearance its power; and with the resultant links to value judgments and conclusions about "others", it has become one of the most important and meaningful contributory factors in human relationships. These early notions of race, and perceived phenotype, provided the basis for a recurring pattern of control and oppression that would later come to be the sociological and psychological foundations of cross-race relations.

The Meaning of Cross-Race Friendships

As noted before, the meaning of cross-race friendships is, in large part, related to how society views the groups involved and the associated collective traits (e.g., stereotypes) ascribed to them. Of consideration is how these societal meanings and beliefs are transmitted to and incorporated by children into their conceptual understanding of others. It is clear that young children learn preconceived notions of others, whether directly or indirectly, from socialization agents (e.g., parents, other caregivers, peers, media), which results in the expression of specific racially-based ideologies [4, 15]. It is important to note that these perspectives may (initially) be less rooted in a young child's individual belief system and be more of a reflection of the internalized messages received from socializing agents and other influential sources.

The concepts of assimilation and accommodation suggested by Jean Piaget in his theory of cognitive development shed some light on this process of understanding others. Assimilation is the cognitive process through which children incorporate or add new information into their current constructions and understandings of the world. Utilized among younger children, it is a relatively unsophisticated cognitive undertaking, such that information that does not fit with prefabricated frameworks or schemas is disregarded. An example of this is the finding that younger children typically consider members of racial groups as more similar to each other, meaning that

they see little variation within groups and conclude that others are "all the same" [1]. As a child/adolescent's level of cognitive sophistication develops, there comes an increased ability to adjust and modify these other-schemas, and in doing so, account for new ideas and information; this is called accommodation. It is through this process that one can begin to more clearly account for and comprehend variation within a category or group. With older children, some research has concluded that they not only note fewer differences between racial groups, but are also better able to see beyond group stereotypes and see group members as individuals [1].

Children and Cross-Race Friendships

Generally speaking, cross-race friendships occur less frequently than same-race ones and decline in frequency and closeness as children get older [2]. A child's environment (e.g., family, peers, school) plays a significant role in their view on and access to others, and ultimately on cross-race friendships. Of noteworthy influence is the family, such that a child's perception of her caregivers' racial attitudes was found to be related to her own attitudes about intergroup contact and the ensuing likelihood of engaging in cross-race friendships [3]. Moreover, children with less biased attitudes about others are more likely to have cross-race friends [2]. Another contributing factor to cross-race friendships is a child's amount of intergroup contact. A racially diverse classroom (or other smaller setting) seems to offer the most consistent and intimate opportunity for children to develop cross-race friendships [8]. Students who attend more racially diverse schools regularly report more friends from different racial backgrounds; with minority students typically reporting more cross-race friendships than European-Americans [13]. However, attendance at a racially diverse school does not automatically yield an increase in cross-race friendships, and may not always be the most conducive to developing these. Size limitations, lack of intimacy, and threats of friendship segregation exist in large, loosely organized heterogeneous environments, and may result in racially-segregated "neighborhoods" of student groups [8].

A variety of research has shown that within diverse school settings, there are differential effects and outcomes on cross-race attitudes and friendships based upon the racial background of the child. For example, McGlothlin et al. (2005, as cited in Ref. [5]) concluded that European-American (white) students who attended diverse schools were less likely to view cross-race dyads as potential friendships. Moreover, European-American students attending diverse schools reported fewer school friends, which may suggest some discomfort with the diversity within the student body [13]. An outcome of this could clearly be a decrease the likelihood of cross-race friendships. Finally, exposure to a diverse school environment for European-American students does not seem to result in a greater perception of variability within other racial groups, although it does for minority youth [6]. An inability to view someone as an individual and not as a representation of their racial group reinforces their status as different and other. This in turn decreases the likelihood that similarities with another are noted and it is these commonalities that would form the foundation of a (cross-race) friendship. These influences contribute to the fact that European-American children are less likely than their minority peers to engage in cross-race friendships [2]. These conclusions further suggest and highlight decade-old findings that majority group students may be at greater risk to develop racial biases, given the support of these biases by societal messages and images, which would decrease their ability and/or desire to enter into cross-race interactions or friendships [15].

Importance of Cross-Race Friendships

The world is shrinking and physical access to diverse cultures is a daily reality for many. The growth of a skill set that affords an ability to function in a multicultural setting and to successfully negotiate interpersonal interactions with a wide array of people is fast becoming one of the most critical developmental tasks for twenty first century humans. It is not surprising that cross-race friendships not only result in the reduction of prejudice among children, but also have a significant impact on adult attitudes and behaviors [2, 12]. Recent work has suggested that a reduction in racial bias, which could conceivably be both a precursor to and an outcome of cross-race friendships, results in less anxiety and more psychological comfort while in intergroup contexts [7, 11]. Cross-race friendships have also been found to have a positive impact on academic achievement for minority students [9].

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Cross-Sectional Research

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Definition

Cross sectional research is a study in which subjects of different ages are compared at the same time. It is often used in developmental psychology, but also utilized in many other areas including social science, education and other branches of science. This type of study utilizes different groups of people who differ in the variable of interest, but share other characteristics such as socioeconomic status, educational background and ethnicity [3, 4].

Description

Researchers studying developmental psychology may select groups of people who are remarkably similar in most areas, but differ only in age. By doing this, any differences between groups can presumably be attributed to age differences rather than to other variables [3].

While the design sounds relatively simple, finding participants who are very similar except in one specific variable can be very difficult [2]. Additionally, groups can be affected by cohort differences that arise from the particular experiences of a unique group of people. Individuals born in the same time period may share important historical experiences, while people born in a specific geographic region may share experiences limited solely to their physical location [3].

Cross-sectional research differs from a longitudinal research in that cross-sectional studies are designed to look at a variable at a particular point in time. While longitudinal studies involve taking multiple measures over an extended period of time, cross-sectional research is focused on finding relationships between variables at a specific point in time [1].

Relevance to Childhood Development

The benefit of this type of research is gaining an understanding of specific variables at various points in life. The data is gathered from generations of people who share the same cultural experiences, in which these shared events may play a role in development. The purpose of this type of research is to gain an understanding how age may impact a specific variable in order to understand the development of individuals over the lifespan.

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Crystallized Intelligence

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Synonyms

Acquired knowledge; Comprehension-Knowledge; *Gc*; Verbal intelligence

Definition

A person's acquired knowledge through, life experiences, education, and culture. Crystallized Intelligence includes language comprehension and production, listening and communication ability, general knowledge of facts, and cultural knowledge [2].

Description

Part of the Cattell-Horn-Carroll (CHC) [1] theory of cognitive abilities, Crystallized Intelligence is considered a *broad* ability composed of a series of *narrow* abilities including *Language Development* (LD), *Lexical Knowledge* (VL), *Listening Ability* (LS), *General Information* (KO), *Cultural Information* (K2), *General Science Information* (K1), *Geography Achievement* (A5), *Communication Ability* (CM), *Oral Production and Fluency* (OP), *Grammatical Sensitivity* (MY) *Foreign Language Proficiency* (KL), and *Foreign Language Aptitude* (LA).

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CST

►Craniosacral Therapy

Cued Memory

►Recognition Memory

Cultural Adaptation

►Cultural Assimilation Model

Cultural Assimilation Model

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C

Synonyms

Cultural adaptation; Second-culture acquisition

Definition

Cultural assimilation models describe changes that occur for immigrants as they encounter and interact with a host culture [1]. In the 1920s, sociologist Robert Park was the first to describe cultural assimilation as a unidirectional process of adaptation whereby immigrants endorsed the values, behaviors, and ideals of the host culture, and simultaneously lost the values, behaviors and ideals characterized by the immigrant's culture of origin. At that time, cultural assimilation and notions of "one people, one culture. . .one nation" were the prevailing view in American society, mostly comprised of White ethnic immigrants. Immigrants were expected to adapt, assimilate and eventually resemble members of the host culture: those that retained any characteristic of the culture of origin were considered un-American [1, 2]. At that time, most immigrants in the USA were considered White ethnics and assimilation was feasible so long as immigrant communities were able to shed more obvious signs of immigration, such as accents or speaking a language other than English. Immigrants of Color were often marginalized because they were unable to assimilate in the same way as White ethnic groups because of their skin color or phenotype [2]. However, in the 1960s, the USA was marked by key historical events, such as the civil rights movement and the onset of Black Nationalism, which prompted acceptance of ethnic heritages other than White European heritage and also challenged cultural assimilation models. Currently, scholars and researchers who write about cultural adaptation criticize cultural assimilation models because these do not capture the experience of individuals who are bicultural, a phenomenon that is very likely to occur for many Americans, as the USA continues to become a multiracial and multiethnic society.

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Cultural Bias

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Synonyms

Attitudes; Behaviours; Beliefs; Social practices; Systemic bias that is associated with a partiality to a sub-group or particular group values

Definition

Cultural bias involves a prejudice or highlighted distinction in viewpoint that suggests a preference of one culture over another. Cultural bias can be described as discriminative. There is a lack of group integration of social values, beliefs, and rules of conduct. Cultural bias introduces one group's accepted behavior as valued and distinguishable from another lesser valued societal group. Cultural bias has been found to be a factor in determining where particular persons live, and what they have available as educational and health care opportunities.

Description

Cultural bias highlights differences among persons and groups. Cultural bias groupings can be identified in differential characteristic preferences. They may include differences in levels of socio-economic status, language, race, ethnicity, religion, or sexuality. Cultural bias can support myths or stereotypes of cultures and in similar fashion may lead to racial and ethnic profiling. For example, a standardized test that offers an unfair advantage; it may beneficial one cultural group but disadvantage those who are not of that cultural group.

Cultural bias is often found in classrooms. Instances include: books and story line representations that suggestion that one group is of less valuable than another.

Relevance to Childhood Development

Cultural bias is learned and develops as the child understands and functions comfortably within an immediate group (society). By the age of 5, children are aware of their cultural and ethnic background as well as the differences between themselves and others. These differences and how they are introduced to the child set the stage for cultural bias may be observed in their speech and behavior toward those who are different. Bias is introduced in how the child has been taught to value or de-value the identified cultural difference.

Relevance to Parent–Teacher Relationships

Cultural bias may be addressed by encouraging parent–teacher communications to help the early childhood professionals better understand parent's cultural perceptions and expectations of their child in relationship to the school program.

In sum, cultural bias reflects preference of one culture over all other and is designed to segregate societal systems.

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Cultural Deficit Perspective

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Definition

A cultural deficit perspective is comprised of two parts: (a) the attribution of an individual's achievement to cultural factors alone, without regard to individual characteristics; and, (b) the attribution of failure to a cultural group. In other words, a cultural deficit perspective is a view that individuals from some cultural groups lack the ability to achieve just because of their cultural background.

Description

Deficit models in general suggest the cause of underachievement lies within the individual rather than the individual's environment. For children in learning situations, the environment may include the learning context such as the safety or comfort of a classroom, the teacher or parent and his or her presentation of new material, or other external factors. The cultural deficit perspective in particular places the cause of underachievement within an individual's cultural group. Some cultural groups have been highly susceptible to cultural deficit explanations of their relative underachievement in academic settings whereas other groups have been stereotypes as consistent high achievers.

Cultural deficit models have been used in a variety of ways. Public policy reports provide an apt illustration. Although these models are often presented in an effort to explain socioeconomic or educational disparities, they can ultimately be harmful to children of non-European ancestry because they impede efforts to promote equality [1]. A report by U.S. Senator and sociologist Daniel Patrick Moynihan in 1965 sparked debate in the United States regarding the role of the federal government in promoting equality between Black families and White families [2]. Although Moynihan's report was designed to provide solutions for strengthening the often poor African American family, it suggested the "disintegration" of the family was to blame for inequity. Later in Great Britain, controversy over the treatment of Afro-Caribbean children in the British education system led to the development of the Swann Report of 1985 [3]. The Swann report concluded that it was neither the students themselves nor the experiences of their cultures that led to low achievement. Instead, it was implicit stereotypes on the part of the education system, such as teacher expectations of failure or mediocrity and other race-based bias.

Employment of a cultural deficit perspective places the burden of underachievement on the culture rather than the social institutions in which underrepresented minorities do not succeed. As a result, the employment of such a paradigm in the study of child development may hinder rather than enhance a parent, teacher, or other community member's ability to work towards achievement equity for all individuals, regardless of cultural group membership.

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Cultural Difference

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Synonyms

Eccentricities of a ethnic or racial group; Ethnic tradition; Lifestyle mores; Specific folkways

Definition

Cultural difference involves the integrated and maintained system of socially acquired values, beliefs, and rules of conduct which impact the range of accepted behaviors distinguishable from one societal group to another [1].

Description

Cultural differences contribute to persons' relationship with their external environment. The result of these groupings can be characterized in identifiable behavioral, and personality differences. Addressed as social competencies, they may include differences in levels of self-disclosure, assertiveness, willingness to cooperate, maintain positions of individual or shared interpersonal style. For example, the culture that dictates that individuals dominate their environment in contract with the culture that promotes living in harmony. Worldviews may as well reflect cultural differences. While one culture values the contributions of their forefathers in response to current societal needs another invests in their youth to seek solutions to the same societal demands.

Relevance to Childhood Development

Cultural competence develops as the child understands and functions comfortably within an immediate grouping (society). By the age of 5, children are aware of their cultural and ethnic background as well as the differences between themselves and others. Further, they are able to demonstrate these skills in speech and behavior. Examples include: established appropriate social relationships with family, friends, learned use of categorical and symbol systems, and developed abilities to organize and regulate their own behavior in situations that are either unfamiliar or familiar [3].

Cultural differences can also be found in individual classrooms, so it is important to consider the child's heritage and any developmental or maturational differences as separate and apart from culture. The valuing of cultural differences can be introduced in the classroom through group activities, for example, inviting the children to share their own cultural heritage. This type of activity encourages the children to value the unique qualities associated their cultural tradition, promotes cultural pride and facilitates a greater self-understanding [2].

Relevance to Parent–Teacher Relationships

Invite teachers and parents from different cultural groups into the home to help the child become comfortable with persons that are different. Encourage parent teacher communications to help the early childhood professionals better understand parent's perceptions and expectations

of their child in relationship to the school program and differences in culture. Be mindful of stereotypical remarks about cultural differences and the social injustices than are often associated with cultural differences.

In sum, cultural differences reflect distinct integrated societal systems.

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Cultural Diversity

►Multicultural Education

Cultural Learning

►Cultural Transmission

Cultural Transmission

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Synonyms

Acculturation; Cultural learning; Enculturation; Socialization

Definition

Cultural transmission is the process through which cultural elements, in the form of attitudes, values, beliefs, and behavioral scripts, are passed onto and taught to individuals and groups.

Description

A Brief Definition of Culture

Culture represents a collection of attitudes, values, beliefs, and behavioral scripts that are generally agreed upon by a group of individuals. It can include everything from language, marriage practices, and governmental configurations, to definitions of family, greeting behaviors, housing structures, and death rituals, to name a few. A primary role of culture is to provide a consistent and stable environment or framework whose goal is to ensure or, at the very least, enhance, the survival of the group. At its broadest level, culture represents mainstream tendencies, but there can be "culture within a culture" whereby smaller segments of the population (i.e., subcultures) have cultural themes that differ from the mainstream. An example would be an ethnic neighborhood in a large urban center where there is the maintenance of the heritage culture; language of origin is often spoken, traditional foods are readily available, and other cultural practices (e.g., multigenerational households) are still followed.

While culture largely represents a group-related venture and construct, it also has a uniquely personal and individual sense to it. There is a great deal of subjectivity in comprehension, interpretation, and incorporation of cultural themes, as individuals vary in their degree of adherence to broader cultural notions. Related is the fact that there is a bi-directional, reciprocal relationship between individuals and culture. On-the-one-hand, we are products of our culture; molded and shaped by its influences. That is, we frequently represent the outward manifestation of our cultural background and experiences. Conversely, individuals have the ability to call for and bring about cultural change, as evident throughout human history (e.g., slavery) where social change has taken place and cultural values have shifted [1].

The Conveyance of Culture: The Processes of Enculturation and Socialization

Cultural elements and themes are not innate to the human experience, but are rather learned and taught. Generally there are three types of cultural transmission: vertical, oblique, and horizontal [2]. Vertical refers to the passing on of cultural knowledge from parents/caregivers to children. Oblique is the more diffuse, intergenerational transmission of culture, whereby unrelated individuals from one generation pass on culture to the next. And horizontal transmission is akin to peer learning, as members of the same generation pass on cultural elements to each other. Regardless of cultural transmission type, there two primary areas of foci: (1) the processes involved; and (2) the entities who utilize these processes. In terms of the former, the two processes through which culture is learned and taught are enculturation and socialization. Enculturation refers to the process through which an individual learns

aspects of a culture based on what is (made) available to her [3]. This process is non-deliberate, informal, and indirect, meaning that there is no prescribed set of outcomes to be attained, but simply that an individual learns cultural elements by virtue of being exposed to them. An example of this is language, such that we generally develop our primary capacity for the language that we grow up most exposed to. Another example of this process is where children will often display attitudes, values, and beliefs similar to parents and caregivers, prior to attaining a real in depth understanding of them from their own perspective.

The companion process to enculturation is socialization. It too represents a means though which an individual learns about culture, but with one significant difference: the individual is specifically and intentionally led to develop culturally endorsed attitudes, values, beliefs, and behaviors. Socialization is a more deliberate, goal oriented process which involves a degree of teaching an individual about culture. Citizenship classes attended by immigrants en route to becoming citizens are one example. Additionally, enrolling children in religious instruction classes is another example of socialization; conversely, having children attend religious services with family is more enculturation. Enculturation and socialization are not always mutually exclusive processes and can take place simultaneously. The aforementioned example of language as enculturation is an example of this, as it can also be related to socialization; given many formal educational settings have a language and grammar component which is linked to deliberate tutelage.

The goals of enculturation and socialization are related. They both: prepare individuals to become successfully functioning members of society; teach culturally desirable behaviors; guarantee that important traditions will be passed to future members of society. In sum, enculturation and socialization are lifelong processes that occur in a wide variety of contexts. They both influence every facet of our lives and contribute to our development across the lifespan.

Variations in Cultural Transmission

While cultural transmission is a universal process, exactly *what* information is transmitted is more culture specific. Variations in cultural transmission occur because of differences in what is available to be learned and what is deemed necessary for an individual to know. Perhaps most easily seen are the variations that occur between cultures, particularly ones that are viewed as fundamentally dissimilar. Offered as an example are the types of information and knowledge made available and considered as necessary for success within a hunting-gathering tribal culture (e.g., foraging and hunting techniques) compared to an urban-industrialized one (e.g., negotiating the use of public transportation). However, variations in cultural transmission can also occur within cultures, as different groups of people (e.g., families, peer groups) may have variable access to cultural elements, different interpretations of them, or may place a different value on what is viewed as essential for survival. A key element of cultural transmission is that it is, in part, transmitted across generations, or at the very least, between individuals. These sources of cultural information are known as socialization (or socializing) agents. They represent the entities that have the ability to educate and indoctrinate us into the cultural milieu and can include; family, peers, teachers, community elders, and media sources, to name a few.

To further understand the nuances of cultural transmission, one must consider that it occurs within a sociocultural context and this influences and dictates potential outcomes. Two theories that present a framework from which to grasp the length and breadth of the influence of a cultural context with the resultant variations in cultural transmission come from Bronfenbrenner [4] and Super and Harkness [5]. Bronfenbrenner's ecological model of human development describes four nested systems of influence, which are arranged like the concentric rings within a tree, and impact the individual, who is found at the centermost point. In order of proximity to the individual and immediacy of influence, they are the microsystem, mesosystem, exosystem, and macrosystem. Each layer is affected by another and these eventually impact the individual at the core. The layers further away from the individual offer more indirect influences. For the sake of simplicity, we will focus on the micro and macro-systems. The microsystem is the "closest" system to the individual and is comprised of those entities and persons that represent immediate and daily (e.g., face-to-face) interactions, such as family, peers, and school to name a few. The macrosystem, which is the most distant and complex of the systems, is akin to a society's culture, and is comprised of culturally based values, attitudes, and beliefs. Of note is the interaction that occurs between the micro- and macrosystems and its resultant impact on cultural transmission. At the microsystem level, families may recreate and "pass on" the culturally based messages that are rooted in the macrosystem; and may do so with little alteration of their original meaning. However, another response could be that families or peers alter or counter macrosystem influences and messages, especially if there is the

perception that they are potentially negative, not useful, or unnecessary for successful functioning. For example, consider an individual who is female and lives in a gender conservative country (macrosystem), yet whose family (microsystem) does not strongly adhere to this cultural value; as such, they (enculturate) and socialize her in accordance with this microsystem value structure, which differs from mainstream notions.

A similar theory which also provides a means for the conceptualization of sociocultural influences upon cultural transmission is the development niche theory of Super and Harkness [5]. It is comprised of three components or subsystems: setting, customs, and psychological characteristics of the caregiver. Setting refers to the context of influence upon an individual and includes both physical (e.g., climate, available objects – such as toys and technology) and social (e.g., family structure, size of peer group). Customs are defined as culturally determined practices and behaviors. And caretaker psychology refers to the attitudes, beliefs and characteristics (e.g., parenting style) of socializing agents. Not only are each of these domains impacted by broader cultural themes, but they also interact with one other. Variations in cultural transmission could result from any number of changes within each of these components or in their interaction. For example, say a family relocates to a different part of a country, this would represent a change in setting, and within this new location, there may be variations in what broader cultural themes are conveyed from the community. Furthermore, in spite of the influence of this hypothetical community there would still be the influences of caretaker psychology, which would also create variations in what was selected to be transmitted and how.

Acculturation: Cultural Transmission from Outside One's Own Culture

Up until now we have discussed and framed cultural transmission as taking place within a particular culture and done largely by other members of the same group through enculturation and socialization. However, another means of cultural transmission is acculturation, which is a process by which different cultural groups come into contact with one other and results in a cultural change of either one or both. Most often acculturation is framed in terms of two groups, an acculturating group, such as immigrants, and the dominant culture, that is, the group established in the new location that sets the mainstream cultural tendencies. As a result of this intercultural contact, the transmission of the new (dominant) culture to the acculturating group occurs, whereby the group may shed its original cultural customs and traditions and adopt cultural nuances more similar to the dominant one. Graves [6] suggests that acculturation produces cultural changes on two levels, group and individual, the latter of which is termed psychological acculturation. Group level acculturation involves changes in the overall culture of the group, such as newly acquired political freedoms, biological changes due to an alteration of diet, social changes (e.g., alterations in marrying practices), or economic shifts, to name a few. Psychological acculturation represents the psychological shifts of individuals within acculturating groups and represents the degree to which they participate in the group cultural shifts. It is more related to individual outcomes from the acculturation process and is characterized by changes in individual identity, values, and behaviors. As such, there is a great deal of variation in how individuals within a group respond to acculturation and the impact of another culture.

Within psychological acculturation there are four acculturation strategies, that in some ways could also be viewed as outcomes the acculturation process: integration, assimilation, separation, and marginalization [7]. These strategies relate to the degree to which an individual accepts and gravitates toward the new culture, while simultaneously, they shed or unlearn elements of their original culture. These processes involve more than an individual making a conscious effort or attempt toward a specific outcome, but are also influenced by attitudes, values, and beliefs, and behaviors of the dominant culture in relation to the acculturating group. Integration is defined as the circumstance when an individual maintains cultural elements of their original culture and at the same time develops nuances of the dominant culture. Individuals who utilize this acculturation strategies display similar adeptness in cultural competency with both their original culture and the dominant one. The process of assimilation involves little maintenance of original culture and a movement towards or into the dominant culture. Symbolic of this are scenarios where individuals change their names to ones that sound more like those of the dominant culture; or when people intentionally do not speak their native language in lieu of the dominant one. There have been instances of forced assimilation of certain groups by the dominant culture; the American Indian boarding school movement, where children were taken from their families and sent to residential schools to be "Americanized", is an example of this [8]. The acculturation strategy or outcome of separation occurs when an individual or a group maintain their original culture and make little attempt, if any, to inculcate elements of the dominant culture into their cultural repertoire. Separation is a more viable outcome when individuals have a strong

base of their original culture, along with ready access to its features; such as an ethnic enclave or neighborhood nestled in a large urban center (e.g., Chinatown), or another locale culturally distinct from the mainstream (e.g., a military base located within another country). Marginalization, the last potential outcome or acculturation strategy, is when an individual is unable to maintain ties with their culture of origin, perhaps due to enforced cultural loss, and they also do not adopt the ways of, or are not afforded acceptance within, the dominant culture, possibly due to exclusionary attitudes or practices. Regardless of the degree to which individuals and groups acculturate, it is a process inexorably linked to the relationship between non-dominant and dominant cultures and is further influenced sociohistorical and sociopolitical themes.

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Culture

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Synonyms

Customs; Ethnicity; Traditions

Definition

The customary beliefs, social norms, and material traits of a racial, religious, or social group.

Description

The way we live our lives, the decisions we make about family, friends, and work, or the way in which we parent our children are all influenced by our culture. In essence, we are by nature the sum of childhood experiences which invariably are linked to the values and traditions of our families. It follows then that culture can be defined as "a group's common beliefs including shared traditions, language, styles, values and agreement about norms for living" [5]. In many ways, culture identifies what is considered acceptable and unacceptable behaviors. It provides the markers by which behaviors are judged and group membership is cemented. Overall, culture defines one's thinking and behavior [5].

Although members of a social group may share common values and/or traditions, there exist subcultures within any social group. Cultural groups often demonstrate greater intra- versus inter-variability. To further complicate the influences of culture on human development, members of a subculture may differ from each other in terms of education, socio-economical status, regional residency, or immigration history [2, 5]. Hence, one is often cautioned against generalizing about groups due to the variability that exists within all groups. Despite the variability within groups, there appears to be some concrete markers of cultural group membership that differ qualitatively between groups. For example, this may be manifested in the way competition and cooperation are viewed and in the verbal and nonverbal style of language.

The study of culture is often juxtaposed as the cultural uniqueness of western versus non-western cultures. Western culture is said to value individualism. In this sense, members of this group are said to foster independence and individual achievement; promote self expression, individual thinking and personal choice; develop egalitarian relationships and demonstrate flexibility in roles; view the physical world as separate from the spiritual world; and associate private property with individual ownership. In contrast, individuals who are members of non-western cultures are said to value group collectivisms (e.g., many immigrant cultures in the United States). For this reason, members value interdependence and group success; promote adherence to normative behavior, respect authority/elders, and group consensus; develop stable hierarchical roles (dependent on gender, family, background, age); believe that the physical and spiritual world are in harmony; and associate shared property with group ownership [3].

The prevailing US culture is dominated by western values and ideals. Competition is the key to survival and individual survival is prized above all else. Although this is

the prevailing value system of the US culture, America is home to many groups from non-western countries, many of which retain their respective inherent culture that is predicated on the group. As such, survival of the fittest becomes survival of the group. Group cohesiveness, above all things, becomes important for survival and group social mobility.

Ogbu argues that one's immigrant history further adds to the differences in value system between mainstream American society and non-mainstream groups. He notes that these differences are a by-product of interactions with the host country, especially if subordination by another group is involved. He argues that groups that have been subjected to subordination develop an oppositional frame of reference, in that they perceive barriers to overcome as identities to be maintained. This is in contrast to groups who develop a non-oppositional frame of reference by which language and cultural differences are viewed as barriers to overcome. These cultural frames of reference are developed as a function of one's immigrant history. Ogbu identifies three types of immigrant groups: autonomous, immigrant or voluntary, and non-immigrant or involuntary. Autonomous monitories are minority groups who may be culturally and linguistically distinct, but are not economically, politically, and socially marginalized (e.g., Jews and Mormons). Voluntary minorities are people who have moved to the United States for a better life. The individuals are bringing with them the values of their home country and may in fact retain many of their traditions while living in the host country (e.g., Chinese and Punjabi Indians). Involuntary minorities are those groups who are part of the American culture due to slavery, conquest, or colonization, rather than a choice (e.g., African Americans, Native Americans, and Native Hawaiians). Involuntary minority cultures in some ways develop in response to treatment by the majority culture [2]. For example, Smitherman defined African–American language as "an Africanized form of English reflecting Black America's linguistic-cultural African heritage and the condition of servitude, oppression and life in America [4]." Here the language which is a cultural marker is born out of the experiences this group has had in US culture [4].

The way in which we communicate utilizing either nonverbal or verbal skills is just as important as our beliefs and value system. Miscommunication often arises between groups based on a lack of shared understanding of language nuances [1]. For example, American Indians, Asians and Hispanics are said to speak softly, Whites tend to speak loudly and fast, and Blacks use affect when attempting to get the point across [6]. More times than not Black tone is misperceived as argumentative by others, while many may wish Asians to speak up to get their point across.

In summary, we are all the sum of our experiences (i.e., country of origin, family background, educational status, economic status etc.). Culture is a group's beliefs and values, its language (i.e., verbal and non-verbal cues), style, traditions, and acceptable norms for behavior. There are more within group variances in cultures creating subgroups/subcultures. In addition, within a subculture, individuals may differ from their reference group based on their own unique experiences [5].

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Culture Development

Definition

The processes of understanding ways of thinking, developmental ways in problem solving, and examination of human development; the cultural historical involvement in traditions, historical events and understanding cultural communities and one's own individual process of development.

Description

Cultural development is the directional progression of thoughtful consideration to the cultural progression in human expansion, through changing contributions in cultural activities of one's everyday human experiences. This process can be accomplished by first examining one's assumptions of how things should be done. This involves understanding that there are values, traditions and others ways to accomplish goals or tasks. Cultural procedures are connected by multifaceted functions that depend on many variables. These can include economics, community development, the community's acceptance of what is normal or abnormal and the constellations of the family. The idea or ways of doing things are a continuous process that are changeable. In culture development, one does not have to abandon what they feel or think; an individual can be

open to change or understand how other cultures work. This understanding can help an individual move beyond ethnocentrism and consider the value of knowledge. Understanding one's own culture either from a collectivist or individualist culture is also a dramatic issue.

Relevance to Childhood Development

By studying cultural processes and how they change can help children to learn about aspects of the various origins of one's own identity, gender, communities, and how this occurs globally. In many countries of the world, children take care of other children at very young ages. They learn at a young age to reason other children. Children as young as 3 years old take care of infants in some cultures. Parents need to decide what is best for them and do that which is right and understand that there are different ways of doing in teaching their children. There are also various ways cultures think in terms of sleeping with an infant. In some areas of the world, it is not a common practice to have a child sleep away from the mother alone in a crib. The biological processes of sleep differ. In some cultures, infants sleep whenever they desire; in other cultures there is a set rule of 8 h/day. There are questions about the infant sleeping with its mother which may be connected to Sudden Infant Death Syndrome (SIDS) in those infants who sleep by themselves [2, 3]. Every culture looks at the way they think as important. Cultures have different views of how they are part of a community; others teach children to be independent. Children can learn about cultural differences and that everyone is born into a culture by being exposed to ready.

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Curiosity

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Synonyms

Cognitive curiosity; Collative motivation; Inquisitiveness; Novelty seeking; Sensory curiosity

Definition

Curiosity is the desire for new information and sensory experience that motivates exploratory behavior [4]. External stimuli with novel, complex, uncertain, or conflicting properties (i.e., collative stimuli) create internal states of arousal that motivate exploratory behaviors to reduce the state of arousal [1]. Through the process of being curious and exploring the environment, then, information and experiences are acquired and learning ensues.

Description

Curiosity is the fuel of learning, development, and adaptation throughout the lifespan [4]. Even our distant ancestors, motivated to satisfy their curiosity, explored the uncertain, novel properties of objects in their respective environments to learn, adapt, and thereby survive. More than ever, being curious and exploratory are the cornerstones of modern societies, as it serves to induce not only scientific, but also social, cultural, and spiritual inquiry [2].

There is a long line of systematic research demonstrating that curiosity is vital for learning and development in both animals and humans. Researchers have illustrated that animals prefer novel stimuli and contexts even in the face of being hungry or frightened [1]. Humans, too, prefer stimulating environments where they can find new information and avoid boredom for the sake of learning.

There are two major kinds of curiosity: cognitive and sensory [3, 4]. Cognitive curiosity is the desire for new information and knowledge; sensory curiosity, in turn, concerns wanting new thrills and experiences [5]. Both kinds of curiosity stimulate exploratory behavior for its resulting satisfaction. Cognitive curiosity motivates observation, consultation, and directed thinking (specific exploration) that results in information acquisition and learning [1]. It is associated with convergent thinking, which is finding the one solution to a question or problem. In contrast, sensory curiosity, which is aroused by boredom and a need for stimulation, motivates exploration of the environment through experimentation with novel physical (e.g., scuba diving) and social (e.g., attending a social function for the sake of experiencing different kinds of people) thrills and experiences (diversive exploration) [5]. This type of curiosity is related to imagination, inventiveness, and divergent thinking; that is, finding an array of applicable solutions to a problem. Engaging in sensory curiosity, while primarily motivated by the need to experience new thrills and sensations,

can result in information acquisition and learning. Both kinds of curiosity interact to foster daily learning and development (cognitive, social, physical, and spiritual) and continuous adaptation to salient environmental demands [1, 4].

Even though curiosity is generally thought of as being positive and thus adaptive, it can be problematic and maladaptive when in excess or unsuitably focused. The excessive gobbling of trivia, scientific experiments that harm, and meddlesomeness are linked to cognitive curiosity. Sensory curiosity, on the other hand, is associated with maladaptive risky behaviors like drug experimentation, verbal and physical fighting, and unprotected sex [5].

Curiosity is indeed a powerful motivator of learning in classrooms for children, adolescents, and adults [2, 4]. Teachers and trainers need to design instruction to stimulate learner curiosity because once aroused, the learners become more attentive to new information, explore in greater depth, employ more exploratory techniques (e.g., consultation with peers, Internet surfing), and engage in these activities for longer periods of time. Curiosity serves to not only stimulate exploratory behaviors at the initiation of a learning endeavor, but also throughout the learning process. The key for educators is to capture and maintain learner curiosity for facilitating optimal learning, which can ultimately develop into a joy for learning about a topic area and enduring vocational interests [2].

Parents and teachers need to model how to be appropriately curious to our youth. As a society, we simply cannot afford to assume that everyone knows how to be curious, and properly so, in every context. Modeling how to correctly ask questions, and when, observe a peer perform a task without being bothersome (e.g., How to play a game), and how to reflect productively about a situation, for example, would be productive steps in developing satisfied, lifelong learners.

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Curriculum-Based Assessment

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Synonyms

Criterion-referenced-curriculum-based assessment; Criterion-referenced assessment; Curriculum-based evaluation; Curriculum-based measurement

Definition

A set of systematic strategies or measurement procedures using direct and repeated observation and recording of ongoing student performance in the local curriculum for the purpose of gathering information to inform educational decisions.

Description

Curriculum-based assessment (CBA) emerged in response to a perception that traditional, standardized testing methods possess inherent limitations in the ability to identify children's educational needs, including a lack of relevance to the curriculum and insensitivity to achievement gains. It is a dynamic, ongoing process of evaluation, conceptualized on the premise that every child can learn and be successful in school when instruction involves the use of materials that are appropriate for each student's unique needs and abilities. The primary purpose of CBA is to improve the match between what is taught and what is being tested in order to facilitate successful achievement for every student (Gickling and Havertape, 1981, as cited in Ref. [11]). CBA represents a shift toward a more direct relationship between assessment and instruction.

Four different models of CBA are commonly identified in the literature: (1) Curriculum-Based Assessment for Instructional Design (CBA-ID); (2) Criterion-Referenced-Curriculum-Based Assessment (CR-CBA); (3) Curriculum-Based Evaluation (CBE); and (4) Curriculum-Based Measurement (CBM) [6, 11]. The primary commonality among each of the models is the direct relevance of assessment materials to the curricula. CBA test items are constructed from material drawn directly from the curriculum being taught, and focus on the process of learning as well as the end product. The assumption is that accurate reflections of student achievement can only be obtained through direct observation and measurement of the skills actually being taught in the classroom [4].

Teacher involvement is viewed as essential to CBA. Gickling and Rosenfield [4] suggest that teachers are crucial for the identification and assessment of a student's difficulties since they are in the best position to observe and interact with the student on a daily basis. Direct assessment of a student's skills in relationship to changing curriculum demands enables the teacher to glimpse the processes employed during learning. When teachers know the precise area of problematic performance, they are able to adjust or modify instruction in that area to accommodate the unique learning needs of the student and maintain appropriate levels of challenge and variability for the student's skill level.

The four models of CBA can be organized into two groups based on whether the focus of assessment is toward long or short-term goals. Three of the models (CBA-ID, CR-CBA, & CBE) rely primarily on short-term, mastery measurement of individual subskills using criterion-referenced items taken from the immediate instructional material. Educational decisions are based on mastery of specific subskills in a hierarchical sequence. Conversely, CBM employs a long-term, general outcome measurement approach of assessment whereby the student's global proficiency across all hierarchical skills in the curriculum is used to identify expected performance of that skill in the future. Educational decisions using CBM are based on changes in performance of a single behavior over time [6, 11].

The final commonality among the four models lies in the use of graphs to represent data obtained on the student's progress. Graphs are important for a number of reasons. First, they provide a visual record of the student's daily performance on a single measure, and allow for comparisons of performance over time [8]. This is important when drawing inferences regarding the potential influences of student performance. Causal inferences can be made with increased confidence when the direction of growth is consistent across variables. Additionally graphs can provide a simple visual representation of the student's growth on single or multiple measures, which is useful in informing instructional decisions and explaining data and programming decisions to teachers, students, and parents (for a more in-depth discussion of progress monitoring using CBA, see Ref. [8]).

Curriculum-Based Assessment for Instructional Decisions

Gickling's original model of CBA (CBA-ID) was designed to remediate the lock-step pace of grade level instruction by tailoring the curriculum to suit the unique needs of each student [5]. The underlying assumption of CBA-ID is that successful achievement is essential for eliciting optimal student engagement with the curriculum and maximum on-task behavior. A student's off-task behaviors are viewed as indications that the instruction and/or curriculum is at a level that is too far above or below his or her current skill level, causing frustration and disengagement [7]. Intervention entails adjusting the instruction to a level that reduces frustration. In contrast to traditional methods of instruction that focus on the areas of deficiency, CBA-ID begins with the student's present level of functioning, and builds upon his or her strengths. This eliminates the frustration resulting from the fragmented learning that often occurs when students are forced to focus on tasks comprised of excessive amounts of unfamiliar material. CBA-ID "assumes that the job of education is to reach students where they are and to teach them effectively and efficiently" [4].

Beginning with entry-level, or instructional level, skills facilitates opportunities for the student to become an active and successful learner. It is a fundamental principle of CBA-ID. Successful achievement is viewed as intrinsically rewarding, and encourages engagement in the learning process and increased on-task behavior. Student engagement and on-task behavior is viewed as essential for the development of optimal skill levels, and is maintained when instruction takes place at a level that is challenging enough to maintain interest without exceeding the student's level of competence. The student who perceives that he or she has the knowledge and skills to be successful is motivated to perform the skills necessary to attain mastery [4].

A student's instructional level can be determined by the ratio of known to unknown elements of academic tasks. Gickling and Armstrong [3] identified three levels of instruction related to dimensions of on-task behavior, (a) frustrational level: "assignments containing less than 70% known elements during seatwork activity and less than 90% during reading activity"; (b) instructional level: "a range between 70% and 85% of known elements for seatwork activity and between 93% and 97% of known elements for reading assignments"; and (c) independent level: "assignments that contain more than 90% of known elements on seatwork activity or more than 97% of known elements in reading". Research generally supports that optimal learning occurs when the ratio of correct items is 70–85% in practiced drill material, 93–97% in reading content, and at least 70–80% in mathematical calculations [2, 6, 9, 11].

The essential purpose of CBA-ID is to identify the student's strengths within the curriculum, and adjust instruction to accommodate his or her unique needs and

abilities to facilitate mastery of curriculum objectives. Assessment focuses on accessing the student's prior knowledge comfortably rather than "pushing . . . to the point of frustration" as with normative assessment procedures [4]. Test materials are drawn directly from instructional material, and designed to be short, and relatively simple to administer. The first step in the assessment is to select appropriate material from the curriculum to identify the student's entry level of skills. The second step uses informal materials to assess how the student interacts with the instructional materials, and identify the processes and strategies used to generate responses. The third step is to use information gathered from the informal, curriculum-based measures to identify the student's instructional level. In the final step, instructional objectives and materials are designed to align with the student's instructional level and remediate areas of problematic performance.

Criterion-Referenced-Curriculum-Based Assessment

Much like CBA-ID, CR- CBA is focused on the direct measurement of a student's skills on a sequence of curriculum objectives for the purpose of identifying appropriate instructional practices [1]. Tests are generally designed to closely resemble teacher-constructed classroom assessments and the content and length varies as a function of the domain that is being assessed. Test items are selected from instructional content, and organized according to increasing levels of difficulty. A single test may assess global performance across the curriculum, or specific subskills within a domain [6]. This model of CBA recognizes the variety of factors that can influence a student's performance at any specific point in time. As a result, multiple forms of the same test are administered on a minimum of three consecutive days to obtain an accurate measure of student performance across variables. The student's performance is compared to a standard or criterion of acceptable performance, and instructional decisions are made according to the student's status within the criterion. Shorter forms of CR-CBA tests can be administered more frequently during the course of instruction to assess the student's progress toward mastery of specific skills [11].

Curriculum-Based Evaluation

Similar to other models, CBE is used primarily for the purpose of informing instructional content. Described by Howell (1986) as a "task analytic model designed to identify which tasks the student is ready to learn as a function of his/her current performance", CBE involves the analysis of subtasks and strategies involved in learning the curriculum. The primary assumption is that the student lacks an essential skill or strategy necessary to succeed in the total task. Students employ both task-specific procedures and general problem solving strategies to achieve curriculum objectives. A student may possess the necessary skills and subskills, but may not know how to organize and employ the resources to recognize errors, plan and generate solutions, or monitor his or her own comprehension. Thus, CBE focuses on the types of errors the student makes in order to identify the underlying strategies as well as the individual skills and subskills.

CBE begins with a survey-level assessment of the student's overall level of performance across a wide range of skills within a curricular domain. This may be completed using a variety of assessment tools, including standardized achievement tests, observation techniques, work product samples, and informal, criterion-referenced tests [11]. The data is reviewed and erroneous strategies are identified. Hypotheses are generated for potential explanations for deficiencies in the student's performance, and those hypotheses are tested with specific-level assessment. In the specific-level assessment phase, criterion-referenced tests are used to evaluate the student's performance on targeted, short-term curricular objectives that will eventually appear in the student's treatment plan. If the hypotheses are correct, remediation focuses on teaching the student the correct strategies for organizing the subskills he or she already possesses into new skills that permit successful task completion, and the student's progress is monitored frequently. If the hypotheses are incorrect, then the sequence should be repeated until targeted strategies can be identified (Howell, 1986).

Curriculum-Based Measurement

Like its counterparts, CBM shares a direct relevance to the curricular methods and objectives employed within a school, and views the student's learning difficulties in relationship to appropriate instruction. Unlike the other forms of CBA that focus on mastery of short-term instructional objectives, CBM is focused on broad, long-term goals of the curricula, including the retention and generalization of learning, in the basic skill areas of reading, mathematics, spelling, and writing. CBM is primarily concerned with the effects of instructional decisions on an individual student's performance rather than the actual content of instruction [10]. Instructional programs are viewed as testable hypotheses about the causes of poor performance. The uncertainty with which diagnostic assessment data can be used as a prescriptive measure of intervention is a major premise of CBM, and one of

the primary reasons why the focus is on evaluation of instructional programs [11]. It is based on research findings indicating a lack of effectiveness in special education programming, and improved achievement outcomes in response to teachers' use of data-driven goals and progress monitoring to guide instructional decisions [10].

Shinn [10] characterizes CBM as "a set of dynamic indicators of basic skills" designed to identify areas of academic difficulties and evaluate the effectiveness of selected interventions. Assessment procedures are narrow in content, short in duration, and drawn from the annual curriculum. They typically employ measures of fluency of key behaviors related to overall academic performance. For example, reading performance may be examined by having the student read aloud from a passage drawn from the instructional material. Performance is scored according to the number of words read correctly in 1 min, and the student's errors are qualitatively analyzed for clues to the underlying processes and strategies employed during reading. The student's entry-level skills and subsequent progress in the curriculum is always evaluated in terms of the relationship to expected outcomes, and the expectation varies according to the considerations of the educational decisions [11].

An important distinction of CBM is the use of valid, standardized assessment methods. Since CBM is used to validate instructional programs, it is important that the methods be valid, appropriate for repeated use, and be sensitive to individual and group performances over time. Standardization assures that each student's performance is measured in exactly the same way with the same test, and increases the reliability that the test will provide consistent, unambiguous results. Standardization and reliability are important for the comparison of a student's performance in relationship to his or her peers, or for comparing the student's performance in a single domain across time. When the student's performance is measured accurately and consistently, one can be reasonably confident in the ▶validity of the results.

Shinn [10] recommends the use of CBM in a problem-solving model, using data-based decisions to describe a student's performance in relationship to expected outcomes. The first step in the process is to identify the problem. This is accomplished through a universal screening measure administered on a school-wide basis. The student's problem is identified as a discrepancy between actual and expected performance rather than as immutable, intrinsic characteristics of the child. Only behaviors that are significantly discrepant from the student's same age/grade level peers are targeted for intervention. To obtain a measure of the student's initial level of functioning, and reduce the effects of confounding variables, multiple samples of the same behavior are assessed over a period of 3 to 5 days. Results are compared to a specified criterion for the behavior, and the problem is clearly and objectively defined in terms of the discrepancy between actual and expected performance.

Once the problem has been identified, the student's performance is analyzed for the appropriateness and/or intensity of remedial or preventative educational services. If the problem is a significant, it is targeted for intervention. This requires some quantification of the data, usually as part of a collaborative effort among faculty members. If the problem is validated, goals are defined in terms of annual performance outcomes, and objectives for the conditions (i.e. setting, time-frame, context) and criteria (level) for improvement of the targeted behavior are written. Instructional programs are put into place, and the student's progress is monitored using short, frequent probes of his or her overall performance in the targeted domains. The data from progress monitoring is graphed, and the student's performance is compared to expected growth and outcome criteria. If sufficient progress is not made, instruction is modified, and goals are adjusted accordingly. Progress monitoring continues until sufficient growth is demonstrated, and/or the student exits the intervention program.

Relevance to Childhood Development

As legislative and social policies demand increased accountability from public educational institutions (i.e. the Individuals with Disabilities Education Act, and No Child Left Behind), curriculum-based assessment is becoming increasingly popular in schools across the United States. The data-based decisions resulting from curriculum-based assessments allow instruction to be guided toward maximum learning potentials for all students, regardless of initial level of academic performance.

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Curriculum-Based Evaluation

►Curriculum-Based Assessment

Curriculum-Based Measurement

►Curriculum-Based Assessment

Customs

►Culture

Cutting

►Self-Injurious Behavior

Cybernetics

►Systems Theory

Cymbalta

Synonyms

Duloxetine

Definition

Duloxetine is used to treat depression and anxiety disorders in children, adolescents and adults. Duloxetine is in a class of medications called selective serotonin and norepinephrine reuptake inhibitors (SNRIs). It works by increasing the amounts of serotonin and norepinephrine, natural substances in the brain that help maintain mental balance and stop the movement of pain signals in the brain. The medication is usually taken once or twice a day by mouth. The medication can also sometimes be used to treat urinary incontinence.

The FDA has issued a warning for individuals under the age of 24 who take Duloxetine. A small number of children, teenagers, and young adults (up to 24 years of age) who took antidepressants ('mood elevators') such as duloxetine during clinical studies became suicidal (thinking about harming or killing oneself or planning or trying to do so). Children, teenagers, and young adults who take antidepressants to treat depression or other mental illnesses may be more likely to become suicidal than children, teenagers, and young adults who do not take antidepressants to treat these conditions. However, experts are not sure about how great this risk is and how much it should be considered in deciding whether a child or teenager should take an antidepressant. Children younger than 18 years of age should not normally take duloxetine, but in some cases, a doctor may decide that duloxetine is the best medication to treat a child's condition.

Common side effects of the medication may include:

- nausea
- vomiting
- constipation
- diarrhea
- heartburn
- stomach pain
- decreased appetite
- dry mouth
- increased urination
- difficulty urinating
- sweating or night sweats
- dizziness
- headache

- tiredness
- weakness
- drowsiness
- muscle pain or cramps
- changes in sexual desire or ability
- uncontrollable shaking of a part of the body

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1. http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/UCM096273

Cytoplasm

Cytoplasm is the part of a cell that is enclosed within the cell membrane. The cytoplasm is the site where most cellular activities occur including metabolic pathways like glycolysis and processes such as cell division. The inner granular mass of the cytoplasm is called the endoplasm and the outer clear area is called the cell cortex or the ectoplasm.

D

D'Amato, Rik

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Life Dates
Unknown–Present

Introduction
Dr. D'Amato is a well known and prolific write in the field of school and neuropsychology whose work has centered on many topics including the importance of practical applications of neuropsychology and learning within school systems.

Educational Information
Dr. D'Amato received his bachelors of Science degree from the University of Wisconsin-Whitewater in 1979. He attended the University of Wisconsin-Madison and obtained a Master's in School Psychology. In 1987, Dr. D'Amato received a Ph.D. in School Psychology with a specialization in Clinical Neuropsychology from Ball State University. He went on to do post doc work at Mississippi State University's Neuropsychology Laboratory for Evaluation and Therapy. Dr. D'Amato went on to accept a faculty position at the University of Northern Colorado in Applied Psychology and Counselor Education where he taught and researched for 18 years.

Accomplishments
Dr. D'Amato was awarded a *Medal of Achievement* as Editor-in-Chief of *School Psychology Quarterly,* the American Psychological Associations (APA) School Psychology Division journal. While at The University of Northern Colorado he was named an Alber M. and Jo Winchester Distinguished Professor for his University Scholarship. Dr. D'Amato has remained an active scholar and has written and published more than 200 scholarly works. Some of his most important works have included *Essentials of Neuropsychological Assessment: Rehabilitation Planning for Intervention,* the *Handbook of School Neuropsychology,* and *Psychology Perspectives on Intervention: A Case Study Approach to Prescriptions for Change.* Dr. D'Amato was selected as a Senior Fulbright Scholar to train teachers and collaborate on curriculum design at the Liepaja Pedagogical Institute-Higher School in Latvia (the Former Soviet Union), and he has also taught in Indonesia. In 2004, D'Amato was awarded a Lifetime Achievement Award by the National Association of School Psychologists Neuropsychology Interest Group (R. C. D'Amato, personal communication, July 5, 2008).

Current Involvement
Dr. D'Amato was recently appointed Professor and Head of Psychology at the University of Macau, China. He continues to write and publish research and is particularly known for his involvement with student research.

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Darwin's Theory of Natural Selection

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Synonyms
Darwinism; Evolution; Microevolution; Survival of the fittest

Author's Note
This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

Definition

According to Charles Darwin, natural selection is the chief process by which evolutionary change occurs. It is a naturally occurring, mechanistic model in which those organisms that possess traits that make it more likely for them to survive are more likely to pass those traits along to their offspring, thereby altering the genetic distributions in their populations over multiple generations and resulting in adaptation to the environment.

Description

Although Charles Darwin (1809–1882) was not the first or only biologist to propose a theory of evolution, his theory of natural selection proved to be the most widely influential and accepted. The theory provides such a powerful centrifugal force for contemporary life sciences that is important to remember that in Darwin's lifetime, the mechanisms of genetics were poorly understood and DNA had not yet been discovered. Darwin developed his theory through sharp observations made throughout his travels around South America on the H. M. S. *Beagle* as a young man, and rigorous analysis of his notes and the samples he collected on his voyage. He continued to refine and research his theory for over a decade after his return, first publishing his theory in *On the Origin of Species* in 1859.

The most important distinction between Darwinian theory and those of rivals such as Jean Baptiste Lamarck (1744–1829), is the role of natural selection as the primary process by which evolutionary change occurs. According to natural selection, those organisms that possess traits that make it more likely for them to survive are more likely to pass those traits along to their offspring. This is because these organisms have survived to maturity. Over multiple generations, these traits will become more and more likely to become prevalent in the population, because those same organisms are more likely to have thrived and successfully reproduced. Darwin used the often-quoted phrase "survival of the fittest" to describe this competition, but natural selection need not imply or require bloody, violent contests to occur. It simply refers to the successful competition for limited resources and the opportunity to sire offspring, which can be thought of as adaptation to the environment. It does not predict development of increasingly complex organisms over the course of evolution, and reiterates that evolution is an ongoing, never-completed process. Much of Darwin's theory therefore focuses on microevolution, the changes that occur within a species due to adaptation to the environment via natural selection. The Galàpagos Islands off the coast of Ecuador provided Darwin with the ideal environment to develop his theory, for while each of the islands possesses similar species of animals, the local environment of each island is sufficiently different to have prompted different specializations among each set of species. The islands are geographically close enough to allow migration but distant enough to make frequent mingling and cross-breeding unlikely; therefore the variations in terrain can be deduced as the primary influence on the sort of traits that will become prevalent in the local populations.

Darwin's stress on limited resources reflects the influence of Thomas Malthus (1766–1834), who observed that populations tend to increase in geometric proportions and, if left unchecked, would totally overwhelm their ecosystems. Malthus concluded that death is necessary to keep population growth in check, and works as a natural balance to population increases. This mechanistic model, which reiterates that all resources are limited and therefore must be the objects of competition, is a crucial influence on the development of Darwin's theory of natural selection.

Darwin recognized that artificial selection is a useful analogy to natural selection. Artificial selection refers to the set of strategies used in animal husbandry to develop new strains of animals. Animals with desirable phenotypes are encouraged to breed, and over the course of several generations a new and distinctive breed or race appears. All dogs, for example, belong to the same species but there is tremendous variability in size, weight, fur, and temperament among different dog breeds due to artificial selection. With natural selection, the traits are not chosen by a human breeder but are the consequence of survival itself. This reiterates the mechanistic aspect of natural selection while underscoring the similarity it shares with artificial selection.

Since its publication in the Nineteenth Century, Darwin's theory of natural selection has been supported by a wide array of evidence from the fossil record, geology, comparative anatomy, genetics, and molecular biology. It has also been subsequently refined by other scientists. One of the best-known modifications in the latter part of the Twentieth Century comes from the work of Niles Eldredge (1943–present) and Stephen Jay Gould (1941–2002), who proposed that evolutionary change does not occur gradually, but in a series of sudden changes. These sudden changes are known as "punctuated equilibria" and occur as a result of selective environmental pressures as well as the isolation of a population. Change can then occur more rapidly than predicted under a more gradual development, and the Eldredge-Gould conceptualization of long stable periods in which minimal change occurs is in

accordance with the Hardy-Weinberg principal of the consistency of the proportion of alleles within a given population in the absence of change-inducing factors such as migration and mutation.

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Darwinism

►Darwin's Theory of Natural Selection

Deaf Culture

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Definition

Deaf culture is a term denoting membership in a cultural community comprised of Deaf individuals who utilize American Sign Language (ASL) as their primary form of communication. Like other cultural groups, unique social norms, acculturation processes, and stages of identity development are present within Deaf culture. Whereas the word "deaf" signifies hearing impairment or the absence of hearing ability, the word Deaf, as used in Deaf culture, begins with a capital D, signifying reference to cultural identity as opposed to hearing impairment alone; the Deaf/deaf distinction is critical in conversations regarding Deaf culture. Not all deaf individuals identify with Deaf culture, although espousal of a Deaf identity is linked to usage of ASL as a primary language.

Description

For those of the hearing world, Deaf culture tends to go highly unrecognized and unnoticed. This lack of recognition may be attributed to the fact that only 0.22% (600,000) of people in the United States are considered deaf across all age groups [8]. Of the aforementioned 600,000 deaf individuals, approximately 200,000 to 500,000 share American Sign Language as their primary language, and identify the Deaf community as their primary reference group (Williams & Abeles, 2004). A second factor which may play a part in the limited awareness of Deaf culture in mainstream American society pertains to the usage of the term "culture," which, in Deaf culture, is strongly linked to language and is not being used in its traditional sense. Many hearing people believe culture to encompass a groups' religion, clothing, diet, language, ethnicity, and the geographic location from which they came [19]. However, Deaf culture is diverse in respect to that it transcends economic status, age, gender, sexual orientation, ethnicity, and religious practices [7]. Although members of the Deaf community come from a variety of distinct backgrounds, their culture revolves around the concept that Deaf individuals share their own distinct language (sign language), experiences related to their deafness, a shared history, and common meeting places such as their own schools, clubs, and sporting events [23]. Central to all of these characteristics is the universal belief that being deaf is not a disability or handicap; it is a way of life that should be cherished and accepted [23, 27].

Historically, deafness has been viewed as an "impairment," typically pathologized and targeted for intervention. In hearing schools and in hearing society, deafness is typically conceptualized as a disability. However, according to the cultural model, Deafness is embraced as opposed to pathologized, with members of the Deaf culture taking great pride in shared experiences, values, and language. The notion that deafness impedes successful functioning in society is rejected, as is the sentiment among those in the hearing world that deafness leads to linguistic deficiency. In short, members of the Deaf community do not despair over their inability to hear, and rejoice in the unique aspects of their language and identity as Deaf. Several degrees of association with Deaf culture are possible, and are frequently contingent upon degree of hearing loss, as well as the age at which hearing loss occurred. For example, an individual who has not completely lost the ability to hear may identify more with the hearing world than the Deaf world, and may choose to pursue assistive technology to aide their hearing ability. An individual who becomes deaf later in adulthood

may also associate more with the hearing world than an individual who was born deaf. Some individuals who are Deaf may elect to "code switch" between the hearing world and the Deaf community, identifying with both the hearing and Deaf culture and employing communication strategies unique to each. However, the vast majority Deaf individuals do not seek to utilize assistive technologies, such as cochlear implants, and primarily associate with others in the Deaf community.

Relevance to Childhood Development

Despite the Deaf communities' understandable pride, their small population in a hearing world poses unique challenges, hotly debated issues, and exclusive concerns. These issues have been coming to the forefront of literature, research, and websites since the term "Deaf culture" began to expand in the 1980s [19]. Three concerns related to childhood development that have arisen in the late twentieth and early twenty-first century include: (1) family issues related to having a child who is Deaf/deaf, (2) educating a child who is Deaf/deaf, and (3) the controversy over cochlear implants.

Family Issues

Little research exists on how having a deaf or hard of hearing child affects the family. The lack of empirical articles is alarming considering the fact that three out of every one-thousand infants are born with hearing loss [7]. Even more surprising is that researchers have typically cited that approximately 10% of children who are deaf are born to hearing parents [10, 23]. Contradicting that percentage is an intriguing report by Mitchell and Karchmer [11] suggesting that only 4% of children who are deaf have parents who cannot hear. Whether the parents are hearing or non-hearing can have a considerable impact on the development of a child who is D/deaf. Parents who unable to hear will most likely be better equipped to raise, educate, and locate services for their child's unique needs. Furthermore, parents who are Deaf "may celebrate in neonatal wards upon learning that a child will be unable to hear" [23, p. 137]. Mothers and fathers who are unable to hear may take comfort in learning that their child will be able to completely take part in Deaf culture [27].

The reactions by mothers and fathers who are non-hearing may stand in stark contrast to those of hearing parents who may view their child's deafness as a "disadvantage," "disability," or an "imperfection." Hearing parents who learn their child will be deaf may experience a range of emotions including shock, anger, confusion, fear, sadness, frustration, depression, loneliness, blame, guilt, and powerlessness [21]. Additionally, parents may grieve the lost possibility of having a "perfect child" and may have a feeling that they are "inadequate for the task of managing the child's hearing loss successfully" [21, p. 234]. The feeling of inadequacy that parents experience may be associated with the struggle for mothers and fathers to locate appropriate services for their D/deaf son or daughter. Often parents may have to deal with a number of paraprofessionals who may contradict each other in opinions as to what methods are best to care for their child. On a daily basis, parents of D/deaf children may have to be in contact with audiologists, speech pathologists, pediatricians, special education teachers, general education teachers, teachers of the deaf (TOD), otolaryngologists, and other health practitioners [5]. Frequently the roles and responsibilities of these experts are not made clear to parents [5]. This may lead to further confusion and stress for mothers and fathers.

Additionally, parents may face considerable difficulty in locating experts who are familiar with deafness. Research has indicated that clinicians and the medical community are often inexperienced in dealing with hearing loss and have high rates of turnover [6]. Consequently, many parents struggle with scheduling appointments with knowledgeable specialists concerning their child's deafness [6, 10]. Freeman et al. [6] state that it is important for parents to locate professionals in a timely manner because "children who are deaf or hard of hearing are better able to communicate with family and peers, and function better academically when they and their families receive early services" (p. 37). Many researchers believe that it is just as important for parents to learn sign language and increase their knowledge about their child's hearing impairment early on [10]. Researchers cite that parents who are able to engage in back-and-forth communication with their child are laying the "foundation for their child's acquisition of language" as well as increasing positive interactions with their son or daughter [6, p. 37]. Furthermore, parents who begin learning communication techniques early on are better able to cope with having a D/deaf child and less likely to mourn the loss of their child's hearing [6]. Still, learning American Sign Language (ASL) takes time and effort. Parents may experience considerable stress if they cannot acquire ASL easily [28].

Lastly, the combination of ASL classes along with the high number of specialists a non-hearing child requires for proper support may become a financial strain on the family. Fusick [7] points out that the lifetime cost for hearing loss is estimated to be about 417,000 dollars. Often insurance companies restrict parents from receiving second opinions from audiologists and other

qualified specialists. Moreover, "reimbursement rates are particularly low for Medicare and Medicaid recipients" [7, p. 102]. This does not factor in co-pays to the pediatrician for visits related to deafness.

Often having a D/deaf son or daughter enter into the family is the first time most hearing parents have had contact with a D/deaf individual. Wood and Turnbull [28] cite that less than 10% of hearing parents have had frequent contacts with D/deaf adults. Therefore, the majority of hearing mothers and fathers have never witnessed D/deaf parents interacting with their children and only have models of how hearing parents interact with their sons and daughters. Hearing parent's difficulty communicating with their D/deaf child may lead to feelings of incompetence and frustration [6]. Obtaining early services is crucial in preventing these feelings from occurring. Overall, there are many obstacles and barriers parents have to overcome in order to appropriately obtain services and support for their child who is D/deaf.

Educational Implications

One of the most difficult services for parents to obtain is acquiring a sound education for their D/deaf son or daughter. For centuries, educating the deaf has proved to be a challenge, provoking much inquiry in a hearing world. The Greeks and Romans in the first century AD encouraged the removal of the deaf from society because they felt they were unable to "contribute to a strong citizen state" [14, p. 10]. However, in the late 1400s a record emerged of a deaf person being taught to read and write [14]. Further evidence for teaching individuals with deafness materialized in the 1500s. Still, there remained no school for specifically teaching the deaf until 1755 when the first public school for teaching the deaf was established in Paris, France [20].

Today, in America, teaching the D/deaf remains one of the most controversial issues in education to date. The concern no longer revolves around whether individuals who are D/deaf can learn but where they should learn. Education of the D/deaf has typically taken place in residential schools separate from the hearing population since the foundation of the American School for the Deaf in 1817 [14]. However, with the passage of Education for All Handicapped Children Act (Public Law 94–142) in 1975, public school districts were required to admit and provide education to D/deaf and disabled children [19]. It was from this time on that educating deaf children in "hearing public schools" began to become common. Since 1975, the Education for All Handicapped Children Act has been reauthorized several times, most recently in 2004 and is now known as the Individuals with Disabilities Education Act (IDEA) [26]. With each of these reauthorizations, the term "inclusion" began to take more precedence over educating children who are D/deaf. Inclusion is the education of students with disabilities or deafness in regular education classrooms [9]. This is opposed to having D/deaf students being taught in a separate classroom or school [9].

Within the past two decades, "parents and students now have the option of choosing between local public school programs and residential school placement." [9, p. 393]. The trend appears to be favoring educating children who are D/deaf in public schools. Heward [9], reports that 84% of children who are D/deaf or hard of hearing attend public schools. Interestingly, reports indicate that more than 40% of D/deaf children receive most of their education in a regular classroom [9, 12]. Only 16% of children who are unable to hear attend special schools for the D/deaf and approximately 90% of these students enrolled in these residential schools have severe to profound hearing loss [9]. Still there remains a push by advocates for full inclusion to incorporate even the most severe cases of deafness in the regular classroom.

Advocates for full inclusion see it as an opportunity for students who are D/deaf to interact with the hearing world and make academic progress. Attending public schools will help students with deafness become comfortable in interacting with those who can hear [17]. In addition to learning how to communicate with those who can hear, many researchers and even members of the Deaf community feel that public schools offer deaf students a "richer curriculum" with higher learning goals than residential schools can provide [1]. According to Heward [9], the number of students receiving post-secondary education has risen drastically in the past twenty years. It could be argued that this dramatic rise in numbers is due to more students who are D/deaf attending public schools and receiving fair treatment under IDEA. As of 2002, approximately 69.4% of all students with hearing loss in America graduated with high school diplomas [7]. One final argument for the inclusion of D/deaf students in public schools is that attending a local school allows individuals who are deaf to live with their parents during the week. Many residential schools are out of commuting distance for most students who are D/deaf and require children to live at the school, which can interfere with family boding and the child may feel detached from their parents [17].

Still, much of the Deaf community believes that public schools cannot properly accommodate nor teach children who are unable to hear. According to the National Association of the Deaf [16] "The inclusion doctrine is rooted in ideology and is frequently a blatant violation of IDEA as

it disregards the language and educational developmental needs of the deaf and hard of hearing children." In addition to this statement, opponents of inclusion fear that D/deaf children in the regular education classroom will be seen as a "visitor" or "outsider" to the class [2]. Antia et al. [2] writes that when hearing students treat D/deaf colleagues as visitors, "these students face greater barriers in obtaining a quality education" (p. 215). Non-hearing students may be viewed as "outsiders" because they are a rarity to many public schools. Mitchell and Karchmer [11] report that "53% of public schools serving deaf and hard of hearing students have only one such student in that school" (p. 99).

With such a small number of D/deaf students in public education, studies have indicated that D/deaf children are often ignored, teased, and neglected by their hearing peers [1, 18, 24]. Furthermore, D/deaf students may lack the development of friendships in a regular education classroom. In a study by Nunes et al. [18] 23% of hearing pupils reported having no friends in a general education classroom as opposed to 67% of children who were D/deaf. These negative interactions with hearing colleagues could have a lasting impact on the psychological and educational development of a D/deaf individual's life. Often students who are unable to hear may not be able to participate in class or fear doing so. As a result, D/deaf students may be thought of as "stupid" or not as hard-working by their hearing contemporaries [3]. In sum, students who are deaf in a regular education setting may be at risk for experiencing feelings of social isolation, loneliness, exclusion, and rejection by their peers if their condition is not properly introduced to their classmates [1, 24]. Moreover, deaf students may lack in developing interpersonal relationships and may not be introduced to deaf role models in a regular education setting [1]. The notion of the D/deaf child as deficient, and deafness as an impairment, may be furthered in traditional public schools, with educational emphases placed on remediating hearing and language related difficulties as opposed to communication and learning via American Sign Language.

Another concern that opponents to inclusion have is that of the general education teacher not understanding the D/deaf student's needs. Along with the hearing students in the class, teachers may be at risk for treating the student who is D/deaf as an "outsider." Possession of biases may lead to the child who is D/deaf being rejected not only by the teacher but by his/her peers. Stinson and Liu [25] noted that if the general education teacher offers an unsupportive and unaccommodating attitude towards the student who is unable to hear, other pupils in the class are likely to follow suit. Therefore, it should be noted by general education teachers that being D/deaf does not cause as much harm to a students learning process as much as negative, unreceptive attitudes do. An additional issue opponents of inclusion cite is that teachers in public schools may not properly accommodate for having a student who is deaf in their classroom. General education teachers may not have a good seating arrangement for the D/deaf child, be reluctant use an overhead, or be unwilling to cooperate with the special education teacher or teacher of the deaf (TOD) [25]. Many opponents to inclusion believe that the regular teacher may work against the special education teacher or TOD rather than with them [2, 25]. This uncooperative atmosphere may make the learning process that much more difficult for the D/deaf student. Anita et al. [2] states that in order for inclusion to work both the general education teacher and the special education teacher must "assume the roles of equal collaborators" (p. 221). In creating an equal working environment, both teachers are in a position to best help the student who is non-hearing. Many researchers take the standpoint that there are academic advantages to students who are D/deaf attending regular schools but there are social advantages for the D/deaf who attend segregated educational settings [1, 9].

Cochlear Implants

Since their inception in 1984, cochlear implants have been the most well publicized debate topic between the hearing world and deaf culture [4]. According to Sparrow [23], "cochlear implants are a technology which attempts to 'cure' deafness by bypassing the outer ear through electrical stimulation of the auditory nerve" (p. 135). Originally cochlear implants were used as assistive listening devices for people who acquired deafness later in life and learned to use spoken language before their loss of hearing [4, 14]. However, the emphasis soon shifted from utilizing cochlear implants on late-deafened individuals to a tool that could be used to aid the development of language in D/deaf children. It was the concept of implanting children, with an eye on increasing functioning in the hearing world and, consequently, weakening their association with Deaf culture, that sparked controversy in the Deaf community worldwide. On June 27, 1990, the Deaf community reacted in outrage when the FDA granted permission for toddlers as young as two years of age to be implanted with the device [4, 14]. Eight years later, the age limit for implantation would be lowered to just eighteen months [14]. Finally, as of 2002, children as young as one year of age can be implanted with a cochlear implant [14].

According to the National Association of the Deaf (NAD) [16], approximately 60,000 people worldwide have cochlear implants. In the United States, roughly 13,000 adults and 10,000 children use the device [16]. Although the hostility towards cochlear implants has cooled since the early 1990s, many individuals who identify with Deaf culture still maintain the argument that a device which attempts to "cure" deafness is treating the condition as a "disability" [4, 23]. This assumption has often lead members of the Deaf community to feel like they are second class citizens in a hearing world. Deaf culturists contend that being D/deaf is not a handicap, that they like being D/deaf, and are proud to have the condition because it allows them to take part in Deaf culture [27]. Moreover, many non-hearing individuals maintain that they would not want to hear even if they had the opportunity to do so [23]. Cherney [4] states that the Deaf "do not identify themselves as disabled but rather as members of a linguistic minority" (p. 27). Membership in this "linguistic minority" is not based simply on being deaf but on the precedence of the type of language they use [4].

Because cochlear implants seek to ensure that D/deaf children use spoken language rather than American Sign Language (ASL), much of the D/deaf community views the device as a means of medical genocide to D/deaf culture [9, 23]. Deaf advocates argue that cochlear implants may interfere with or prevent children who are D/deaf from learning sign language. Furthermore, the device may hinder children who are unable to hear from developing their identity as a Deaf person [14]. The Deaf community fears that if children who are implanted grow up to use spoken language instead of sign language and do not associate with Deaf culture, the population of their community will be drastically reduced. Therefore, many non-hearing individuals view cochlear implants as a threat to their culture. In a study of D/deaf and hard of hearing adolescents, Most et al. [13] found that adolescents who had a stronger Deaf identity had more negative attitudes towards cochlear implants than did adolescents who had a weaker Deaf identity. This could be because these adolescents perceived the device as a danger to their culture (Most, Amatzia, Wiesel, and Blitzer, 2007).

Still, receiving a cochlear implant does not necessarily mean automatic acceptance into the hearing world. Tucker [27] attests that cochlear implants do not eliminate deafness altogether and that a child who receives an implant is still deaf. Therefore, "cochlear implants do not change deaf people into hearing people" [14, p. 435]. Individuals who have cochlear implants described sounds and speech as "coarse" or "degraded" compared to sounds received by their hearing peers [14, p. 435]. Many D/deaf individuals with cochlear implants still rely upon sign language, gestures, and speech reading in order to fully understand what their peers are saying [16]. Thus, having a cochlear implant could pose a risk for a non-hearing individual in that this person may not fully be accepted into the hearing world and at the same time be rejected by Deaf culture [23]. This may lead to feelings of isolation and may prove to be a danger to the D/deaf person's self-esteem as they are trapped between two cultures, accepted by neither.

Since the 1990s acceptance of cochlear implants by the Deaf community has become more common. In order to ameliorate the controversy surrounding cochlear implants, NAD issued a position statement on October 6, 2000 [15]. In the statement, NAD recognized that receiving a cochlear implant is a personal decision for an individual not a public one. In regards to parents who are thinking about implanting their child, the National Association of the Deaf offered the following statement:

- The NAD recognizes the rights of parents to make informed choices for their deaf and hard of hearing children, respects their choice to use cochlear implants and all other assistive devices, and strongly supports the development of the whole child and of language and literacy [15].

In recent years, the Deaf community is more focused on having individuals and parents make informed decisions on cochlear implants not on the device itself. NAD (2008) indicates that each family should be informed of the risks and the responsibility of undergoing such a surgery. Moreover, NAD and the Deaf community want individuals who are considering getting a cochlear implant to recognize that this surgery will not make individuals who are deaf, hearing. It will only aide them in successfully straddling the hearing and deaf worlds if utilized correctly [15].

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Deaf Overview

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Persons who are deaf typically lack sufficient auditory sensitivity (hearing) to be able to receive and understand spoken language through audition alone. Being deaf is distinguished from being hard of hearing (in some countries referred to as "hearing-impaired" or "partially hearing") in audiological terms by the degree and configuration of hearing loss. Generally, hearing losses that average 90 dB (decibels) or greater and are sensorineural (occur at the level of the cochlea, sometimes called the "inner ear," or higher in the neurological system) are labeled "severe-profound" or "profound" in degree. Persons with such degree of loss or greater bilaterally (in both ears) are referred to as "deaf," and some specialists expand that term to include children with losses at the 70 dB or "severe" level. Decibel is a measure of the intensity of sounds (perceived as loudness) and indicates the intensity with which a sound must be produced in order for an individual child to hear it. Persons who are termed "hearing" typically perceive sounds at 25 dB or less in intensity. In fact, the intensity required to hear a specific sound or portion of a sound can vary depending on its frequency or pitch. Hearing levels are typically given as an average of the dB necessary for perception at frequencies ranging from 500 to 2,000 Hz as determined for the better ear. This range covers most but not all of the sounds in spoken language. Even using the more restricted definition of a 90 dB loss, persons who are deaf show different levels of ability to receive and to produce spoken language, depending upon their individual response to appropriate hearing amplification (hearing aids), use of cochlear implants, skill at speechreading (also called "lipreading"), history of hearing experience prior to the onset of the hearing loss, and other factors, many of which remain to be explained.

Although some deaf persons achieve spoken language abilities, receptively and expressively, this requires an optimal combination of facilitative factors and intensive training. In contrast, visual languages such as natural or native sign languages (examples are British Sign Language, American Sign Language, Sign Language of the Netherlands), signing systems (systems such as Signed English or Signed Dutch that combine natural signs and fingerspelling or newly-created signs to visually represent the meaning units of the local hearing community's spoken language), and other systems that visually represent the sounds of spoken language (e.g., Cued Speech) are more readily learned than spoken language when appropriate environmental input is available. A considerable number of researchers have documented that, when there are adults who interact on a continuous and naturalistic basis with the child using a natural sign language, deaf children develop sign language skills at similar rates and patterns as hearing children develop spoken language. Thus, sign language development of deaf children with deaf parents who use signs fluently tends not to be delayed compared to hearing children's spoken language development [32].

The term "Deaf" when written with a capitalized "D" is used to indicate a cultural and linguistic identity as opposed to the audiological definition of "deaf" given above [38]. Persons who consider themselves to be members of a Deaf community share a sign language in common and tend to socialize and interact frequently. The actual level of hearing loss can differ among members of Deaf communities, and it is not necessarily at the severe or profound range. A strong sense of identification with a Deaf community has been found by researchers to enhance self-esteem and provide support for general social-emotional development. Deaf persons have tended to build communities at least in part based on their shared visual language and the resulting ease of communication. Shared needs and life experiences have also led to the establishment of political organizations to advocate socially and with governmental entities for rights and accommodations to enhance opportunities for persons with hearing loss. Although there has traditionally been a division between persons who consider themselves "Deaf" and use sign language and persons who are audiologically deaf or hard of hearing but depend primarily on spoken or oral language (most of whom also tend to more actively interact with the hearing community), the two groups frequently work together to support needs of all persons with hearing loss.

Frequency and Etiologies of Hearing Loss

Hearing loss is considered to be a low incidence disability, with losses of 70 dB or greater occurring at or soon after birth in only one out of approximately every 1,000 children in the United States and other western countries; however, it is a disability that has a major impact on development. The incidence of hearing loss is undoubtedly higher in non-industrialized countries where medical care is less available and diseases that can cause hearing loss are more prevalent. It is estimated [27] that approximately two third of the world's children with hearing loss live in developing or as-yet non-industrialized countries, although reporting is less reliable in such areas.

The age at which hearing loss occurs leads to different effects, and even a relatively short period of hearing appears to help establish neural pathways that allow more efficient processing of auditory information if it becomes available again due to use of more effective amplification (hearing aids) or cochlear implants [33]. Hearing loss at or shortly after birth results in the most significant challenges to development of spoken language and also, typically, to acquisition of academic skills.

Approximately half the incidence of hearing loss in infancy or early childhood is thought due to genetic factors, and more than 400 forms of hereditary hearing loss have been identified. Genetically-caused hearing losses are not always present at birth but can be progressive, occurring across subsequent months and years. Various genetic etiologies present with varied levels of hearing loss and associated physical and medical conditions, but in almost 70% of cases, genetic deafness is unaccompanied by any other disability [5]. This is not the case when the population of deaf children is considered overall, however, with reports of as high as 40% having some condition in addition to hearing loss. Physical, social, and cognitive disabilities vary in incidence and severity, but the presence of multiple disabilities has been found to present special challenges for development. Viral and bacterial infections as well as prematurity and birth-related difficulties are implicated in many cases of multiple disabilities, although the relative prevalence of one etiology or another varies over time and across the globe. For instance, gestational rubella ("German measles") was previously a common etiology in which hearing loss was accompanied by vision, motor, or cognitive disabilities, but vaccines against that disease had almost eliminated it as an etiology in Western industrialized countries by the end of the twentieth century. Cytomegalovirus (CMV) continues to be a major cause of hearing loss as does meningitis, both of which can also cause other disabilities.

Procedures for Identification of Hearing Loss

During much of the twentieth century, even in industrialized countries, childhood hearing loss was often not identified until at least the age of 2 or 3 years, resulting in very late institution of programming and consequently very delayed acquisition of language skills. By the turn of the century, age of identification of hearing loss had dropped to well below 1 year of age due to the implementation of hearing screening in early infancy, often during the neonatal period. It has been well documented that, if intervention services are provided immediately upon identification of hearing loss, average language and social-emotional development of deaf children has significantly increased, albeit remaining somewhat below that of hearing children [39].

Traditionally, audiological testing was based on behavioral responses to sounds of varying frequency (pitch) and volume or intensity (loudness). Older children and adults could indicate when they heard a sound, while an audiologist conducting the test mechanically produced sounds of varying frequency and loudness. With young infants and toddlers, responses might be eye blinks eye widening, or head turns toward sound. This form of observational testing can be effective in some cases, but it can also be highly unreliable because of fleeting infant attention or because of the observer's difficulty identifying a movement as a reaction to the sound. By 4 to 6 months of age and until about 2 years of age, a procedure called Visual Reinforcement Audiometry can be used. In this situation, the child's correctly indicating a sound is reinforced in some way so that the specific response behavior (again often a head turn but sometimes a more complex activity like dropping a block into a container) tends to occur only when a sound is heard. Testing using this procedure is more reliable than non-reinforced observations [37], but it cannot be accomplished during early infancy and is complicated with children whose development is significantly delayed by other disabilities.

It is known that hearing, when it is intact, functions even prior to birth (e.g., Ref. [11]). This realization has led to efforts to identify hearing loss at the earliest possible age and therefore to begin intervention efforts as early as possible. Early identification of hearing loss, even during the neonatal period, can be accomplished using electrophysiological methods, especially measuring auditory evoked responses (neural responses to repeated sounds) and evoked otoacoustic emissions (mechanical energy created in the inner ear when a sound is heard). These methods can be used at any age and are both non-invasive and non-painful [9]. One or both are used in many neonatal screening programs and, although typical responses to these measure change with maturation (and thus they must be conducted and interpreted by trained specialists) reliability is good, especially when they are used to screen for the possibility of hearing loss and combined with more detailed follow-up electrophysiological and/or behavioral testing.

The above testing procedures assess a person's awareness of sound at different frequencies or pitches, but awareness does not always assure that a sound can be differentiated from those of other frequencies or that meaningful units of sound can be identified. To assess the usefulness of hearing, especially for purposes of processing auditory language, tests of speech perception are necessary. They assess children's ability to detect and discriminate among suprasegmental characteristics of sounds (length, intonation patterns, number of syllables) as well as among vowels and consonants. Behavioral testing as well as a number of parent-response measures are available to measure these skills.

Linguistic and Academic Characteristics of Deaf Children

When no other significant level of disability is present, the average cognitive level of children who are deaf is equivalent to that of hearing children if they are assessed on nonverbal tasks [8]. However, verbal and language skills are typically delayed except in the small (<10%) portion of the population born to signing deaf parents. Even when sign language or a sign system is used at home and at school, deaf children's access to language input tends to be limited by the oft-documented lack of fluency in sign by hearing parents and teachers – themselves usually recent learners. In addition, deaf children are typically not in an environment where there are multiple signers. Language and knowledge acquisition is limited by their inability to "overhear" (or, with signs, "over-see") informational exchanges among people around them. As an outcome, deaf children typically have smaller lexicons (vocabularies) than hearing children of their chronological age, they have many difficulties with the syntax of either the spoken language or the non-fluent signing systems to which they are exposed, and use of language for learning is frequently not developed to expected levels. Accordingly, academic achievement tends to be limited, and despite provision of comprehensive educational programming, deaf students' average reading levels at graduation from high school in the U.S. often remain roughly equivalent to the average for hearing fourth graders (typically 9–10 years old) [36]. Writing skills are similarly delayed. This has also been reported across various countries and is reported for

both children who are exposed to signs and to those in so-called "oral" academic programs that focus on use of spoken language only [21].

Delays have also been reported in acquisition of mathematics skills and areas such as science and social studies. Not surprisingly, performance on written or "worded" math problems is most affected given the need for both reading comprehension and understanding of math concepts and procedures in their resolution. It needs to be understood, however, that despite the delays noted on average, there are deaf children who excel both linguistically and academically. The range of functioning in those areas is quite large. There are indications, moreover, that language and academic achievements can be significantly increased with early identification of hearing loss (prior to 6 months of age if hearing loss is congenital, or present at birth) and immediate provision of appropriate intervention services [24, 39].

The Impact of Early Identification and Intervention

A number of researchers have found that, at least in the early years of life, the "average" for deaf children with early intervention falls within the "low-average" range for hearing children on a variety of language measures [23, 24, 40]. Positive effects have also been found for early literacy skills and for social-emotional development.

Part of the positive impact of early intervention is due to early use of amplification, a practice that seems to assist children's attention to and processing of auditory information. Certain aspects of the auditory neurological system continue to develop after birth and are influenced by receiving input during the early months and years of life [12]. In addition, early exposure to visual language such as a natural sign language or a signing system or cued speech becomes possible when parents know about their child's hearing loss and can begin to learn one of these systems.

Regardless of the type of language system used with the child, it is also important that parents feel confident and competent to provide supportive input. In addition, interactive behaviors that generally enhance language development (even for young hearing children) need special emphasis when the child faces the challenges of hearing loss [23]. Paramount among these behaviors during the earliest stages of development is parents' tendency to provide supportive scaffolding for communication. These behaviors include responding to the child's existing focus of attention instead of beginning new topics that change the focus, imitating vocal and gestural behaviors of the child, providing language to label objects and events in the child's immediate environment, providing time for the infant or child to take a turn in the interaction, and treating infant behaviors that may not be intentionally communicative as though they are. In addition, parents will interact in more natural and supportive ways when they feel positive about their child's potential for development and when they feel they are knowledgeable about their child's abilities and needs. According, early intervention specialists stress that programming is to be provided to the family and not merely to the child him or herself [7]. Among other aspects of intervention, families' social-emotional needs as they react to the child's diagnosis should be addressed and positive support provided. There are indications that such an approach leads to more reciprocal parent–child early interactions and to enhanced child developmental outcomes. It also assists parents in recognizing their own strengths as the true expert on their child – and seeing hearing loss as only one of the myriad characteristics that make up the whole child.

Options for Supporting Language Development

Many researchers and educators recognize that the centuries-long argument about the "best" way to support language development of deaf children has been divisive and had the effect of slowing progress in developing overall methods for promoting language development. The passionate and sparsely data-based arguments have primarily been conducted between proponents of "oral" or spoken language and proponents of sign language or systems of representing spoken language meaning units through manual signs.

Sign languages have developed naturally, separate from spoken languages, in deaf communities throughout the world and, despite significant similarities noted among them in patterns of using spatial representations to express syntactic structure, they are distinct languages. The full "language" status of American Sign Language was argued by Stokoe [35] and much research since has specified semantic, pragmatic, and syntactic structures of that and other natural sign languages. It is obvious that natural sign languages can express the same level of meaning and have syntactic organizations that, albeit using different forms, are the equivalent in sophistication to that of spoken languages.

In addition to deaf communities' natural development of sign languages, educators such as L'Epee in France have since the 1760s created and used systems that combined signs in ways replicating the syntactic structure of the surrounding community's spoken language, thereby hoping to encourage development of linguistic structures to

support both the acquisition of spoken language and of literacy skills. These efforts were seriously dampened when the Congress of Milan in 1880 declared that oral (or use of spoken language only) methods were the most appropriate for deaf children and were to be used throughout the Western countries for educating them.

A resurgence of the combined systems of sign plus spoken language (e.g., Signed English, Signed French) occurred in the last half of the twentieth century as researchers demonstrated that language, academic, and social-emotional development of deaf children with signing deaf parents were at least as high and typically higher than those of children whose parents did not sign [25]. Although researchers have more recently come to question whether these findings reflected to some degree environmental conditions beyond merely parental language use (for example, the incidence of multiple disabilities is lower in children with deaf than with hearing parents), they served to document that use of signs did not depress academic or cognitive functioning. The goal of combining signs with spoken language, theoretically produced in synchrony by hearing people so that either or both signals were available to the deaf child, was to promote communication of meaning while also giving a model of the structure of the community's spoken language. This was expected to assist the child in developing both communication and literacy skills in that language. Unfortunately, literacy levels have not appreciably improved vis a vis hearing children with the use of simultaneous communication (sometimes called, inaccurately, "total communication"). This has been blamed in part on the less-than-fluent use of the systems by most hearing adults (parents and teachers), although benefits to the children have been noted when adults attain fluency [19, 29]. Others have suggested that, because of differences in syntactic devices used in natural sign languages and in spoken languages, systems in which sign and speech are expected to be combined or produced in unison are nearly impossible for most people to produce ([15]; but, cf. Luetke-Stahlman and Nielsen). Johnson et al. have referred to this approach as "sign supported speech," to emphasize that the signs being produced do not replicate full language structures. Despite earlier arguments that children could not process auditory and visual linguistic information simultaneously, this does not seem to be the case [30], and sign supported speech may be of benefit to deaf children especially when cochlear implants or advanced amplification devices are used.

A different kind of method to provide visual input to supplement and disambiguate the incomplete and sometimes distorted auditory information deaf children are able to perceive was created by Cornett [10] and involves use of hand signals to represent the sounds instead of meanings of words being spoken. Use of this system (which has been tailored to fit the sounds or phonology of many different languages) has been reported to support deaf children's language development and their development of phonological skills both in spoken language and in literacy [2, 18]. Most of the positive reports have focused on children using French or Spanish spoken language environments, and best effects have been noted from early and intensive use at home and at school.

The tradition of using only spoken language (or "oral" methods) to support deaf children's language development has continued and continues to have passionate advocates. Traditional oral programs have actually emphasized multi-modal communication in that speech reading (lip reading) has been included among the receptive language skills promoted. Unfortunately, there are limits to the assistance that speech reading can contribute. For example, only about 30–40% of the sounds of English can be recognized by the lip shapes as they are produced [10]. It appears that languages differ in this characteristic, with the phonology (speech sounds) of Spanish for example being both more regular and more visibly available than English. Even in the best case, however, depending upon limited auditory input plus speech reading requires significant cognitive and social abilities to "fill in" missing information. Although there are certainly cases of successful spoken language acquisition by children in oral programming, there have been multiple exceptions, and readers of research in this area should be sensitive to the fact that in many cases children who are not making progress are dropped from oral programs, leaving only the "successes" to be assessed in research. Typically, achievement of spoken language is best predicted by a combination of child non-verbal cognitive abilities, parent education and support of language and education, and the absence of additional disabilities or behavioral difficulties. Since the latter part of the twentieth century, increasing numbers of children born deaf (or becoming deaf during childhood) have benefited from use of technologically advanced, individually programmable hearing aids and/or use of cochlear implants which provide auditory-like information. Use of these devices, especially cochlear implants, has been intensively researched and children using them perform on average significantly better on auditory and auditory-based language tasks than those not using them [13]. Early use (before 2 years of age) of cochlear implants, along with the other positive predictors of achievement by deaf children in general (early intervention, high levels of parent education and

involvement, lack of multiple disabilities, high non-verbal cognitive skills), has often resulted in spoken language achievements that are at levels similar to those of hearing children, at least in the area of vocabulary development [26]. As with children using sign language or signing systems as their primary means of language development, syntactic skills remain more difficult for deaf children to achieve even when using cochlear implants [31].

Although the traditional argument between proponents of oral (spoken only) language and some form of sign language or signed language system has continued across reports of the acquisition of language by deaf children using cochlear implants and advanced hearing aid technologies, benefits seem to accrue from use of these devices regardless of the language system employed. Given significant amounts of spoken language input, children using sign supported speech as well as those in traditional oral programs and in auditory-verbal programs (where dependence on speech reading and other visual accompaniments to spoken language is discouraged) and in cued speech programs have shown advances in language and in acquisition of literacy skills. Despite these advances, however, the achievement gap between deaf and hearing children has yet to be eliminated. In addition, cochlear implants are useful only for children who have profound (and in some cases, severe or severe-profound) levels of hearing loss, not for those with lesser degrees of loss.

Educational Methods and Placement Options

As with the use of various methods to support language development, approaches to educational placement of deaf children have changed over time. Over the past 2 centuries, special or separate schools have been prevalent, based on the assumption that highly specialized programming is necessary to support development of deaf children. These schools were typically focused on use of one and only one of the language approaches discussed above and classes tended to have a low pupil to teacher ratio in order to address individual communication and learning needs. Especially in the schools that used sign language, special schools allowed deaf children the opportunity to interact freely with other deaf children and with adults with whom they could communicate fluently. The special schools often became places in which children developed their identity as deaf persons and to which many developed a strong sense of loyalty.

Prevailing social and educational expectations changed over the course of the twentieth century, with increasing demands for integration of all students within the "mainstream" or general educational settings if it was determined that such settings could meet their academic needs. The assumption was that this would provide more equalized opportunities for learning as well as assimilation within the general population. In most western countries, all children with disabilities (including deaf children) have individualized educational plans designed annually that specify academic objectives, services to support those objectives, and most appropriate educational setting. In the U.S., as in most Western countries, the majority of children who are deaf now attend mainstream or general education schools, whether in separate classrooms with other children with hearing loss, in a general education classroom where the great majority of classmates are hearing, or moving between the special and general classroom for various subjects during the day or week. Those in general education classrooms frequently have special small-group or individualized sessions with a specialist in deaf education at some time during the day or week in which skills are reinforced. For children who use sign language or cued speech, interpreters are provided in the general classroom.

Although it was expected that placement of children who are deaf in classrooms where most students are hearing would equalize access to information and support acquisition of age-appropriate academic skills, research shows that only 1% to 5% (e.g., Refs. [3, 17, 28]) of academic achievement is predicted by type of class placement . Higher general achievement by deaf students in mainstream settings than in special school settings is often reported, but analyses suggest this is due primarily to other pre-existing characteristics of the students and their readiness to learn (e.g., Refs. [21, 28]). Problems that have been encountered include the facts that less information is obtained through interpreted than direct communication [22] and that social isolation is common when communication between deaf and hearing students is difficult [4, 34]. Co-enrollment placements, where a "critical mass" of deaf children (one third or more of the class) are placed together in a general education classroom, where signs (or the deaf children's predominant language system) are taught to the hearing as well as deaf children, and where at least one of the co-teachers is fluent in the deaf children's language system are reported to have better outcomes in the social-emotional area and to not depress the academic functioning of the deaf or the hearing students [16]. This type of placement, while apparently beneficial, requires significant resources – as well as the presence of a number of children who are deaf and of teachers who specialize in deaf education – to maintain. Patterns and effects of various approaches to class placement and delivery of educational services to deaf children critically need more practice-based research.

Social Interaction and Social-Emotional Development

As discussed above, a common goal of early intervention is to assist parents (those who are hearing are primarily at issue) in establishing comfortable and reciprocal interactions with their deaf infants. There are reports of increased parental directiveness, decreased sensitivity to visual attention, and problems with reciprocal turn taking in interactions between hearing parents and deaf infants and toddlers when compared with hearing parents with hearing children. This has been variously assumed to result from parental stress and the apparent need to "teach" deaf infants and from hearing adults difficulties adapting to the visual needs of deaf children. However, several large studies have indicated that early intervention and higher levels of social support decrease those difficulties. In addition, theoretical concerns that a difference between mother and infant/toddler hearing status would disrupt positive emotional attachment have not been borne out in research, and the distribution of attachment categories have not differed significantly between hearing mothers with deaf or with hearing children [23].

Social emotional and behavioral difficulties that have been reported to be of higher incidence in deaf than in hearing children are attributed primarily to the presence of child language delays and/or communication difficulties between deaf children and their hearing parents, siblings, or peers [20]. Multiple disabilities also increase risk for social-emotional difficulties. As in other developmental realms, more positive social-emotional development is documented for deaf children who have higher levels of language development and communication skills, regardless of the modality or modalities through which language is expressed – and a shared communication system between parent and child supports such development. Language delays in deaf children are associated with an impulsive instead of reflective learning and problem-solving style [14]. In addition, development of motivation for communication and learning can be depressed in deaf children when parents are overly protective and do not allow sufficient opportunities for independence and responsibility. Higher self-esteem and resulting educational and social success are more common for deaf individuals whose sense of identity is bicultural, that is, they identify with and value aspects of both deaf and hearing cultures [6].

Beneficial Accommodations and Technologies

In addition to benefits from advanced hearing aid technologies and cochlear implants, deaf children can benefit from other developing technologies. Captioning of spoken language on television programs, movies, DVDs, and similar media can provide access to information that would be inaccessible if available in voice only. It should be noted that such an approach is not thought to actually support initial reading skills but can expand those skills in a meaningful context. Many issues remain to be investigated as to the appropriate rate or speed of captions and the degree to which they should provide verbatim versus modified translations of the spoken content. Real-time captioning in various forms is increasingly available for classroom lectures and similar events and has promise for providing significantly increased access to content in those situations. Currently, questions remain about the most effective ways to provide these services and the degree to which they accurately reflect the spoken language content. Captioning of web media continues to be inconsistent. It can be expected that both accuracy and knowledge about effective use of captions will increase with continued research and evaluation and that domains in which forms of captioning are available will also increase.

Electronic communication devices are used widely by older deaf children as well as by hearing, and text messaging provides ready communication among deaf as well as hearing peers. A study in which pagers were distributed to deaf teenagers showed promise for increasing independence and decreasing parents' concerns about their children's safety when away from home [1]. To date, these and similar devices have primarily been studied in regard to effects on social and communicative functions; however, they also have potential for significant educational/instructional uses. For example, networked laptops and similar technologies are currently in use in some classrooms and can increase deaf students' ability to participate, especially when in mainstreamed classrooms. Web-based instruction has also been found to have positive effects on learning, although effective use tends to require relatively advanced reading skills, and learning is best supported when student engagement is high and when person-to-person instruction is also provided to supplement the media-based instruction.

Summary

Although language and academic performance of deaf children continues on average to lag that of hearing children, gains are occurring with early intervention, use of advanced technologies, and increasingly positive parent and societal attitudes about deaf children's potential for development. Flexibility in choice of language approaches as well as in educational placements and services to meet the characteristics and needs of both child and family

helps to promote development of deaf children. In general, family characteristics such as responsiveness to deaf children's interactive attempts, early and consistent experience with a perceptually-accessible language system, and a high level of parent engagement with the child and his or her educational experiences promote social, linguistic, cognitive, and academic development.

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Deaf-Mutism

►Mutism

Deception

►Dishonesty

Declarative Memory

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Synonyms

Explicit memory; Long-term memory

Definition

Declarative or explicit memory is one of two categories of long-term memory. The other is **procedural memory**. Declarative memory is the conscious recollection of experiences, events, and information used in everyday living.

Description

Declarative memory stores facts that are consciously known and is separated into semantic and episodic memory. Semantic memory is the storing of general factual knowledge, independent of personal experience. Knowing telephone numbers, foods, capital cities and specific words and definitions are example. Episodic memories include specific experiences, skills and events of a life. Examples are riding a bicycle, attending a music concert or a specific person. The memory types are considered to be connected to and support each other.

Declarative memory is aggressively studied in a variety of academic and medical disciplines such as psychological science, biology, and a variety of studies involving the human brain. Results of these studies are adding to information about the functioning of the human brain in a variety of learning or living situations of humans at all stages of life. There is discussion over the precise terms to be used when discussing the types and functions regarding memory.

Continuing studies in neurological sciences reveal declarative memory is based in cognitive experiences. Memories are transferred through specific parts of the human brain such as the amygdala or hippocampal nuclear structures before long-term storage is possible.

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Decoding

►Reading Skills

Decoding Skills

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Synonyms

Reading skills acquisition; Word attack skills

Definition

Decoding skills are the tools needed to make sense of the spoken or written word. These skills are necessary in order to read, write and speak. The word decoding commonly refers to understanding on the word level and not comprehension of higher meaning.

Description

One important component of Decoding is phonological awareness, which is the understanding of the sound structure, and how words are composed of various sounds [1]. Phonological awareness includes the ability to segment sounds, rhyme, and identify syllables. Another component of Decoding is alphabetic knowledge, or The Alphabetic Principle, which is the understanding that letters are used to represent speech sounds. The third component of Decoding is Orthographic knowledge which is the understanding of the writing system in order to represent language this can include spelling, punctuation and capitalization. Together these components allow a person to properly decode written and spoken word [2, 3, 5].

The primary areas in the brain responsible for decoding include Wernicke's area and the Occipital lobe. Wernicke's area is responsible for understanding spoken language and damage to this area can result in decoding deficits. The Occipital lobe is responsible for receiving and understanding visual stimuli and damage to this area can result in visual decoding (reading) deficits [2].

Relevance to Childhood Development

Children utilize decoding skills when learning how to read, write and speak. If children encounter difficulty decoding either the written or spoken word then this can impede their development [4]. This can cause learning disorders and result in academic difficulties [2].

When damage to the brain causes the inability to read this is called Alexia. Dyslexia or Developmental Dyslexia is a term commonly used for children who have difficulty learning to read due to specific learning disorders, where they did not properly acquire the decoding skills necessary.

When damage to the brain causes the inability to understand spoken language this is called Aphasia. Developmental Aphasia is a term used for children who have receptive language deficits as they have difficulty acquiring the decoding skills necessary to understand spoken language.

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Deductive Logic

▶Deductive Reasoning

Deductive Reasoning

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Synonyms

Deductive logic; Syllogism

Definition

Deductive reasoning is the process of using general premises to draw specific conclusions. For example, *Do not enter a fenced yard that is protected by a dog,* is based on the logic that dogs tend to be territorial and can possibly bite individuals who enter their territory. A second example is the following:

1. Every football player must were a helmet while playing in a football game.

2. Joseph is a football player.
3. Therefore, Joseph must wear a football helmet while playing in a football game.

Description

Reason involves thinking about the world and developing an understanding of it. In deductive reasoning, a series of premises are used to develop conclusions. If a valid form of argument is used and the premises are true, then conclusions will be correct. This reasoning depends on the validity of the premises. If any of the premises are false then so is the conclusion.

Deductive reasoning begins with a major premise or general statement followed by more specific statements known as the minor premises. In order to draw accurate conclusions, one must move from the major premise to the minor. In the example of deductive reasoning given in the definition section above, sentence 1 is the major premise and sentence 2 is the minor premise. These statements are assumed to be correct. Since the two sentences are valid, the conclusion must be true. Argumentation follows this pattern: If 1 is true, and 2 is true, than 3 must be true.

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Defense Mechanisms

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Synonyms

Defenses

Definition

"Defense mechanisms" or "defenses" are thoughts, feelings, and/or behaviors used to avoid anxiety about experiencing unpleasant or unacceptable intrapsychic or interpersonal truths. Implicit in this understanding is the fact that anxiety is often a very distressing and disorganizing event in itself, and humans try to protect themselves from enduring this experience [1, 5, 6].

Description

The term defense mechanism was originally conceived early in the twentieth century by Sigmund Freud in his elaboration of the concepts of resistance and "working through." He was attempting to understand why psychoanalysis was such a difficult process. Why, Freud asked, did his patients not benefit more quickly from his efforts to interpret the workings of their minds? Why did they often appear to thwart treatment [1]?

A fundamental tenet of Freud's theory of the mind is that instinctual aggression and sexuality, energies located in the structure of the Id, must constantly be mediated by the functions of other structures, the Ego and Superego. This mediation is attained through the use of defense mechanisms. Most well known from Freudian treatment theory is the defense of "repression," a mental process that keeps content from the instinctual Id from breaking into consciousness and from being remembered upon demand by the patient. This creates a difficulty in Freudian psychotherapy because repression keeps anxiety-producing content, which needs to be experienced and examined, from entering consciousness. This defense thus must be "worked through" by continually repeating interpretations (via the Ego) until the patient can tolerate experiencing the desires of the Id and eventually renounce them [5].

Freud's early conception of Id was that of "chaos, a seething cauldron of excitability" [5] that, at best, could only be contained. Later, in the 1930s Freud suggested that the Id was perhaps more capable of actual development and maturation. His daughter Anna Freud went on to develop these ideas in her book, *The Ego and the Mechanisms of Defense*, originally published in 1936 [4]. One of Freud's disciples, Otto Fenichel, carried the work further in his discussion of "character defenses" [3]. This work by A. Freud and Fenichel led the way to a more interpersonal understanding of defenses as compared with the more strictly intrapsychic concepts originally proposed by Freud. Instead of exclusively understanding defenses as protective of the impulsivity and excitability of the Id, defenses gradually began to be seen in relational matrixes with other people that protect patterns of behavior, thoughts, and/or feelings [7].

Although modified throughout the past century by different personality theorists, the general concept of "defenses" continues to be important in our culture. In addition to repression, other defenses that continue to be in common use include: rationalization (justification of

unacceptable behaviors to reduce guilt), intellectualization (separating feelings from thoughts and using only intellectual responses), projection (attributing one's own thoughts and feelings to others), regression (returning to behaviors and feelings from earlier in development), isolation (separating conflictual thoughts), sublimation (redirecting impulses), denial of reality (refusing to believe or sometimes even perceive a reality outside of one's own understanding), fantasy (gratifying needs through daydreams), displacement (transferring objectionable thoughts, feelings or behaviors from one person or situation to one that is less objectionable), identification, including identification with the aggressor (idealizing others in order to reduce one's own feelings of inferiority), undoing (use of ritualistic behavior to absolve guilt about unacceptable feelings, thoughts or behaviors), and reaction formation (replacing unacceptable thoughts, feelings or behaviors with their opposites) [2].

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Defenses

►Defense Mechanisms

Deferred Gratification

►Impulse Control

Defiance and Norm Violation

►Conduct Disorder

Defobin

►Chlordiazepoxide

Delay of Gratification

►Academic Delay of Gratification
►Impulse Control
►Self-Regulation

Delayed Language

►Receptive Language Disorders

Delayed Speech

►Receptive Language Disorders

Deliberate

►Intentionality

Delinquency

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Synonyms

Juvenile crime; Juvenile delinquency

Definition

"Delinquency" refers to violations of law conducted by individuals who are found guilty of such acts and are legally defined as a juvenile.

Description

A juvenile is adjudicated "delinquent" when he or she has been found guilty of a crime. Violations under the juvenile justice system fall into two categories: criminal and status offenses. State and federal policies both guide the ways in which these violations are processed, though approaches vary across jurisdictions.

Delinquency has often been treated synonymously to terms such as rule-breaking behavior, antisocial behavior, and conduct disorder. The commonality among these concepts is deviant behavior; however, there are important distinguishing features. Rule-breaking behavior is a non-diagnostic, non-legal term that encompasses a broad spectrum of behavior, ranging from developmentally appropriate to serious violations of the law. *Conduct disorder* is a psychiatric diagnosis that presents as aggressive behavior toward people or animals, willful destructiveness of property, theft, deceitfulness, or serious rule violating behavior that yields severe impairments in social, academic, or occupational functioning [1]. Rule-breaking behavior in and of itself does not constitute a diagnosis of conduct disorder, nor is it necessarily a violation of the law. Further, many delinquent youth do not meet diagnostic criteria for conduct disorder. Antisocial behavior refers to acts that violate social norms and generally is associated with those behaviors that meet diagnostic criteria for conduct disorder.

Prior to the existence of the juvenile court in 1899, there was no legal distinction between young and adult offenders. Police and prosecuting attorneys advocated for a separate juvenile court for this reason. The state could form a presumption of capacity for criminal intent for children between 7 and 14 years-of-age (children under 7 years-of-age were largely protected by an "infancy" defense). For example, a 12-year-old child's attempt to conceal evidence of a crime might demonstrate an awareness of wrongdoing, which would render the child culpable and eligible for criminal prosecution. Age, however, could also reduce or even exculpate the culpability of juveniles. Judges' and/or jurors' sympathy for young offenders often resulted in premature release, automatic case dismissal, or reduced sentences.

Concerns regarding inconsistency of court practices with children and adolescences, as well as concerns from child welfare advocacy groups, prompted the establishment of the first juvenile court in Cook County, Illinois. The overriding rationale for the juvenile court was rehabilitation, and the paramount question was a youth's amenability to treatment [2]. Because the central concern was treatment and rehabilitation, the key actors in the juvenile court were mental health professionals. The initial purpose of the juvenile court was two-fold. Juvenile courts served to protect children accused of crimes from the severity of the adult criminal courts. The second function was to provide services to neglected youth or children suspected of engaging in criminal or deviant behavior [3].

Several causal theories of delinquency have been proposed, with varying levels of empirical support. Some researchers have proposed that delinquency is a response to strain or stressors that serve to alleviate negative emotions associated with stress or strain [4]. Others have proposed that delinquency is a response to an absence of significant relationships with conventional others and institutions [5].

More recently, researchers have examined the dynamic interplay of biological, psychological, and social factors its relevance to delinquent behavior. Researchers have proposed that risk of delinquency is associated with acquired or inherited neuropsychological variation, which may emerge as cognitive deficits, difficult temperament, or hyperactivity. Some theorists suggest that delinquency follows two developmental trajectories – life-course-persistent and adolescence-limited [6]. Life-course-persistent is said to begin early in life and arises out of a combination of high-risk, difficult behavioral patterns, and a high-risk social environment. Throughout childhood and adolescence, individual characteristics and socioenvironmental variables interact and the child develops aggressive and antisocial behavior patterns that persist into midlife.

Adolescent-limited delinquency, according to this theory, surfaces during puberty as a reaction to psychological discomfort associated with desiring more autonomy than is appropriate for their age and developmental level. Most of these individuals eventually transition into adulthood without remnants of anti-social behavior. However, this transition may be hampered if the severity of their delinquency during adolescence resulted in incarceration, substance dependence, felonies, or a disruption in their education.

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Delusional Disorder

►Psychosis

Dementia Infantiles

►Childhood Psychosis

Dementia Praecossima

►Childhood Psychosis

Democratic-Indulgent Parenting Style

►Permissive Parenting Style

Demonstrating

►Behavior Modeling

Dendrite

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Synonyms

Nerve cells; Neurons

Definition

Dendrite (from the Greek "dendron" or *tree*), a thin extension from the cell body of a neuron or nerve cell that allows information to be received from other neurons in the form of electrical or chemical stimulation, which is then sent to the cell body [1]. The branching of dendrites allows the connection to thousands of other neurons through *synapses* [2].

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Deoxyhemoglobin

►Hemoglobin

Dependability

►Reliability

Dependent Variables

►Variables, in Experimental Developmental Research

Depersonalization Disorder

►Psychosis

Depressants

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Synonyms

Alcohol; Anticonvulsants; Antipsychotics; Anxiolytics/hypnotics; Barbiturates; Barbs; Benzodiazepines; Blue

devils; Carisoprodol (Soma); Chloral hydrate (Noctec); Diethyl ether; Downers; Diphenhydramine (Benadryl); Ethchlorvynol (Placidyl); Gammahydroxybutyrate (GHB); Glutethimide (Doriden); Goofballs; Ketamine (Ketaset); Ludes; Meprobamate (Mil-town); Methaqualone (Quaalude); Methyprylon (Noludar); Muscle relaxants; Neuroleptics; Nitrous oxide; Nonbenzodiazepine sedatives; Opioids; Sleeping pills (e.g., Ambien, Lunesta, Sonata); Tranquilizers

Definition

A drug which lowers arousal ("depresses") the action of the Central Nervous System. While depressants are used medically in the treatment of some anxiety disorders, more commonly they are consumed socially in the form of alcoholic beverages. Depressants effects on the human body include somnolence, unsteady gait, slurred speech, and uncoordinated reflexes.

Description

Depressants include, but are not limited to, alcoholic beverages, along with various medicines used to treat anxiety disorders and situational anxiety, often before an uncomfortable medical procedure. Except for alcohol, depressant drugs are strictly controlled by governments. Depressants can also be addictive. (See ►Addictive Drugs)

Deprivation

►Bereavement

Depth Therapy

►Humanistic Therapy

Derived Score

►Standard Scores

Destitute Family

►Homeless Families

Development of Moral Sense

►Moral Development

Developmental Age

►Psychological Age

Developmental Apraxia

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Synonyms

Developmental coordination disorder; Developmental disorder of motor function; Developmental dyspraxia; Mixed specific developmental disorders

Definition

The term apraxia means without action/doing, from the Greek root "praxis." Apraxia is technically the complete inability to perform learned purposeful movements and is unrelated to impaired motor strength, coordination, comprehension, or sensation [6, 11, 12]. The term is often used interchangeably with ►dyspraxia, which is technically the partial inability to perform learned purposeful movements. Liepmann portrayed apraxia as a disconnection between the idea of movement and its motor execution. Various types of apraxia in adults have been delineated, with the major subtypes of ideational, ideomotor apraxia, and limb-kinetic apraxia [6, 12]. In pediatric populations, ideomotor apraxia and developmental apraxia of speech are considered the main subtypes. Developmental apraxia of speech has gained considerable attention in the literature, is the main pediatric type of apraxia, and has become a key focus of many pediatric speech pathologists and clinical psychologists.

Description

In adults, the ability to perform skilled movements, praxis, is stored in the inferior parietal area of the brain as movement representations [2]. Involving the association cortex, praxis is rooted in the dorsal occipitoparietal pathway and the ventral occipitotemporal pathway, respectively forming the "where" and "what" systems that help the brain determine the spatial location of objects and object identification. More research is underway to determine if the same brain pathways exist in children. In general, if a child cannot perform basic over-learned movements/pantomime actions, he/she is likely to be diagnosed with apraxia [2]. Two types of apraxia have been described in children: apraxia and developmental dyspraxia. Developmental dyspraxia has been defined as the failure to develop the ability to execute age-appropriate complex motor actions [16]. Developmental dyspraxia cannot be diagnosed if the deficits are better accounted for by the presence of ataxia, weakness, involuntary motor activity, selective motor control, or inadequate demonstration or practice [16].

Diagnostically, apraxia and developmental dyspraxia are covered in the classification systems of the American Psychiatric Association (DSM-IV-TR) and the World Health Organization's (WHO) International Classification of Diseases (ICD-10), although neither nosology applies the terms specifically in the diagnosis. Rather, apraxia and developmental dyspraxia fall into the more general categories of Developmental Coordination Disorder in the DSM-IV-TR (Diagnosis code: 315.4) and Developmental Disorder of Motor Function or Mixed Specific Developmental Disorders in the ICD-10 (Diagnosis codes: F83, F83) [5, 17].

Ideomotor apraxia is defined as the inability to perform transitive (requiring use of tools) or intransitive (familiar gestures) movements on command [12]. Frequently, ideomotor apraxia is referred to as impaired pantomime and imitation [2]. To assess for ideomotor apraxia, individuals are often asked to pretend to use common objects (e.g., scissor, key, hammer) or make symbolic gestures (e.g., wave goodbye) [2, 12]. One of the most common errors of ideomotor apraxia is using a body part as object (BPO). For some children, a second attempt at the movement alleviates confusion and promotes successful performance, precluding a diagnosis of apraxia. In contrast, other children who are unable to make corrections and successfully perform movements even after a second attempt are likely have limb apraxia [2]. Regarding brain localization, ideomotor apraxia has been associated with left hemisphere lesions usually in the inferior parietal lobe/supplementary motor area or a lesion of the corpus callosum [2, 12]. Another main apraxia subtype is ideational apraxia, which has been described as the inability to carry out a series of gestures due to a loss of action plan for the movement [12]. For example, when asked to fold a piece of paper, place it into an envelope, seal the envelope, and put a stamp on it, the individual is unable to carry out the movement sequence. Another example would be filling and lighting a pipe [12].

Overall, a diagnosis of apraxia is made when a child is unable to perform simple over-learned motor sequences (e.g., combing hair, waving goodbye, brushing teeth) within the context of a relatively normal neurological profile. Sometimes the movements are performed, but they are awkward, slow, or do not accomplish the desired objective [16]. Six impairment patterns have been identified in children described as having apraxia: "1) difficulty learning general rules or schemata about classes of motor actions; 2) using perceptual cues such as spatial location or object speed/trajectory; 3) organizing somatosensory/vestibular information; 4) problem solving or adaption to new situations; 5) analyzing task requirements and components, using knowledge in an effective fashion; and 6) preparing for upcoming actions [2, pp. 304–305]." Often, children with apraxia or dyspraxia (i.e., the terms are often used interchangeably) are described as uncoordinated or clumsy [2]. Some investigators have identified a group of related disorders called developmental coordination disorder (DCD) [16]. DCD has been defined as an impairment in the quality and functional purpose of movement not accounted for by intellectual ability, age, or other diagnoses of impaired functioning [15]. The fields of occupational therapy and psychology may commonly view DCD as a type of developmental dyspraxia, but many authors caution clinicians about lumping the two disorders [16].

Developmental Apraxia of Speech (DAS)

Apraxia of speech represents impairment in motor programming for speech production, usually resulting in articulation difficulty [12]. Developmental Apraxia of Speech (DAS) is a developmental pediatric speech sound disorder characterized by difficulty voluntarily making precise and consistent movements required for speech sound production, even when no overt neuromuscular deficits are present. Children with DAS do not properly develop skills to select, plan, initiate, and sequence motor patterns of speech. Synonyms for DAS include: Developmental Verbal Apraxia (DVA); Developmental Verbal Dyspraxia (DVD), Developmental Dyspraxia, Articulatory Apraxia, and Childhood Apraxia of Speech.

The diagnosis of DAS is a controversial one lacking consensus as to the essential characteristics and criteria for identification [3–5, 13, 14]. Some investigators acknowledge the importance of considering DAS on a continuum of impaired motor and language abilities, from the most difficult to understand cases requiring augmentative communication devices to the less severe individuals who are easily understood [5]. However, there exists a true need to establish an agreed upon DAS behavioral profile not only to provide reliable criteria for differential diagnosis but also to facilitate participant selection for research and to evaluate treatment efficacy.

Speech and language pathologists routinely evaluate children with DAS and report the most frequently cited behavioral correlates as inconsistent errors, prosodic abnormalities, and reduced phonemic repertoire [4, 5, 13]. Inconsistent errors are potentially the most salient markers for DAS, with considerable variability in consonant and vowel production over repeated syllabic articulations [3]. Inappropriate prosody, particularly with regard to emphasis within words and phrases, emerges as another prominent feature of DAS. Clinicians working in the field of speech and language agree that the prosody and syllable articulation in children with DAS are affected more profoundly and distinctively than other aspects of speech or phonology. In fact, some research has highlighted the critical roles sequencing and timing deficits play in most syllabic difficulties. Additional characteristics frequently cited regarding DAS include: groping (e.g., struggling to produce or imitate sounds or words), inability to imitate speech sounds, and general oral-motor difficulties.

Task complexity, deficit severity, and age add to and alter the behavioral presentation of children with DAS. Thus, considering DAS severity along a continuum is essential [13]. Errors in children with DAS differ from errors of children with developmental speech delay and resemble errors of adults with acquired apraxia of speech. Furthermore, although considered a speech disorder that directly impacts language abilities, DAS may occur in isolation free from associated language deficits [8, 9]. Moreover, while it is important to note that children with DAS do not automatically have deficits in other aspects of language, it is equally important to be aware that they may be at higher risk for developing other language problems. Some research has found correlations between DAS and other language functions (e.g., reading and writing); however, clinicians are cautioned about making assumptions and are urged to view each child with DAS on a case-by-case basis.

Specific indicators of DAS often present at an early age, a time when the child would benefit from early identification and intervention. Delayed speech development, limited expressive vocabulary, restricted consonant sound repertoire, and distorted vowels and absent consonant sounds are observable characteristics [7]. With increasing complexity and length of words and statements, speech becomes more difficult to decipher. Halting speech, hypernasal quality of speech sounds, and inconsistent and unpredictable productions may be evident [3]. Unfortunately, correct first-time articulation gives youngsters and their families false hope for consistently accurate pronunciation. Young children with DAS exhibit behaviors consistent with superior receptive language in contrast to their difficulties with speech output. In addition to the noteworthy inconsistent speech deficits, difficulty imitating facial movements, sounds, and words may be present. Moreover, feeding difficulties are often reported as evidenced by finicky eating habits, possible drooling, and aversion to mixed textures (e.g., tomato and meat sauce) [9].

Various etiologies have been delineated for DAS: neurological (e.g., intrauterine, trauma, stroke, infections), complex behavioral disorders (e.g., genetic, metabolic), and idiopathic neurogenic speech sound disorder. Some investigators assert that DAS arises most likely from a failure in neural maturation and organization, especially in the cortical areas responsible for motor planning and phonemic representation. The deficiency in phonemic representation is thought ultimately to impact perceptual abilities and associated motor programs that are instrumental in facilitating the development of perceptual categorization skills [14]. In contrast to children without DAS, children with DAS appear to process real words in a similar way as how they process nonsense words. In essence, sensorimotor learning deficits emerge and lead to poor prelinguistic articulatory-auditory networks which, in turn, make the establishment of phoneme-specific networks impossible. Weak sensorimotor feedback loops preclude children with DAS from responding to and self-correcting incomplete motor plans, whereas, typically developing children are able to self-motor and benefit immediately from feedback. Children with DAS likely have to initiate a new word production plan for each articulation, adding more time and effort to the child's already existing struggle with speech output.

Diverse treatment approaches have been proposed to help children with DAS [10]. Linguistic approaches targeted at the child's use of speech sounds directly teach the rules to determine sounds and sound sequences

regularly incorporated in language. Motor-programming approaches assist children in acquiring skills to create sounds and sequences of sounds accurately, consistently, and automatically. Some treatments include a combination of linguistic and motor-programming approaches [10]. Most interventions consist of sensory and general cuing techniques. Within the context of specific treatments, other goals may be targeted to incorporate correct word usage, prosody (melody and rhythm of speech), and nasality. Speech and language pathologists are instrumental in assisting children and families by including play-based techniques where families are partners in assessment, planning, and treatment. Overall, early identification and intervention plays a key role in enhancing language development and fostering smoother transitions to school.

Relevance to Childhood Development

Children with any type of apraxia need to be examined carefully to ensure diagnostic accuracy, as clinicians frequently misdiagnose apraxia. It is important to keep in mind the various types of apraxia and the concept of developmental dyspraxia, where a child has failed to learn how to execute complex motor sequences. Treatment provided by occupational, physical or speech/language therapists is indicated.

Developmental Apraxia of Speech

Children with DAS are generally at risk for early and persistent problems in speech, expressive language, and the phonological foundations of literacy. Additionally, many youngsters with severe DAS will become candidates for augmentative and alternative communication and assistive technology. Most children with DAS display highly variable speech performance and lack a consistent improvement in speech accuracy. Such variability emerges as a salient diagnostic marker and requires a comprehensive speech and language evaluation with particular emphasis on the motor act involved in speech production.

Children with DAS generally exhibit language and motor dysfunction which often requires special academic school support [10]. Their organizational problems, poor social use of language, and generally reduced vocabulary repertoire present communication obstacles for not only the child but also his/her peers and teachers. Basic language problems surface and cause significant developmental lags, due in part to the individual's reduced vocabulary size and generally poor expressive as compared with receptive language. Frequently described by parents and teachers as clumsy or sloppy, children with DAS may exhibit notable weaknesses in both gross and fine motor skills. Fine motor skills include chewing and swallowing. In hindsight, many families acknowledge that indications of such gross and fine motor skills were present early on. For example, some infants who had initial difficulty nursing were later described as messy eaters who frequently choked during meals. Physical or occupational therapy is typically indicated for children with motor difficulty in the context of DAS.

Regarding treatment, children with DAS tend to make slow progress and usually benefit from intense sessions occurring numerous times per week [10]. To achieve the greatest communication efficiency, therapy is likely to continue throughout the school years on as intensive a basis as possible. The main goal for children with DAS is to achieve the best possible communication through focused effort on enhancing speech and language skills. DAS represents a lifelong communication problem that needs to be viewed in terms of problem severity and associated remedial services required at specific ages across the lifespan.

For children who present with severe DAS, clinicians question the likelihood of the child's attainment of oral communication [10]. Oral communication may not be a reasonable goal, and alternative means for expression may need to be considered. Such alternatives may include manual communication, sign language, assistive language notebooks with pictures or words, and electronic communication devices.

Children with less severe DAS will gain skills for effective communication and possibly achieve speech characterized by few or no speech errors [10]. The individual with DAS and his/her family need to be advised that inconsistent speech errors will occur occasionally, especially when the individual is fatigued. These DAS-type errors will also emerge as the child develops into a teenager and adult who engages in situations requiring considerable amounts of talking or in circumstances when he or she needs to make an oral presentation.

Definitions

Ataxia: From the Greek word "a taxis" meaning without order or incoordination. Ataxia means lacking coordination. Ataxia may affect fine and gross motor skills as well as oral motor and eye movements. Ataxia may be symptomatic of another condition or may apply to a group of specific degenerative diseases of the nervous system.

Association cortex: The association cortex is the largest area of the cerebrum; it is the interface of the temporal, occipital and parietal lobes. Via the association cortex, information from different sensory modalities (i.e., visual,

auditory, tactile/kinesthetic) is integrated in order to form more complex perceptions.

Dyspraxia: The partial inability to perform learned purposeful movements, unrelated to impaired motor strength, coordination, comprehension, or sensation.

Ideational apraxia: Inability to carry out a series of gestures due to a loss of action plan for the movement.

Somatosensory/vestibular information: *Somatosensory* refers to bodily sensation information. This may include touch discrimination, information about joint and limb position, detection of vibration, perception of pain, temperature and pressure. *Vestibular*, often associated with the workings of the inner ear, refers to one's sense of balance. In addition to issues with balance, vestibular disorders may include dizziness, vertigo, and lightheadedness. Vestibular problems may be primary or may be secondary to other conditions. *Somatosensory/vestibular information* pertains to an individual's sense of bodily sensations and balance.

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Developmental Constructivism

►Constructivist Psychotherapy

Developmental Coordination Disorder

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Synonyms

Clumsy child syndrome; Congenital maladroitness; Developmental apraxia; Developmental dyspraxia; Minimal brain dysfunction; Minimal cerebral dysfunction; Motor learning difficulties; Perceptual motor dysfunction; Sensorimotor dysfunction; Sensory integrative dysfunction; Specific developmental disorder of motor dysfunction

Definition

Developmental Coordination Disorder is a childhood diagnosis characterized by a marked impairment in the development of motor coordination that is not explainable in terms of age, intellectual level or any other diagnosable neurological or psychiatric condition [2].

Description

The marked impairment in the development of motor coordination which is the key feature of developmental coordination disorder was first recognized in the early 1900s; but received little attention by the empirical literature perhaps mainly due to the early belief that the children would outgrow their problems. Accumulating evidence in the 1990s however, documented that children with motor difficulties do not outgrow their motor problems. In contrast, this evidence documented that children with motor impairments often developed deficits in academic and psychosocial functioning. Growing awareness of the condition, prompted recognition by the World Health Organization and the American Psychiatric Association (1994) [2] of a distinct motor impairment syndrome which they classified as "Developmental Coordination Disorder" [1]. This term was confirmed upon an international consensus meeting held to debate the differing labels that historically have been used to describe the condition. In the course of this meeting it was agreed to use the term Developmental Coordination Disorder in future research reports and clinical practice [8].

The essential feature of Developmental Coordination Disorder is a marked impairment in the development of motor coordination which results in the inability of a child to execute tasks that are age appropriate given normal intellectual abilities [2]. Performance in daily activities that require motor coordination is substantially below that of typically developing children of comparable age and intellectual level. This may be manifested by marked deficiencies in achieving motor coordination milestones (e.g., walking, crawling, sitting), dropping things, "clumsiness," poor performance in academic tasks (e.g., handwriting, organizing seatwork, gym class) and leisure activities (e.g., sports, playground activities). Often combinations of these deficiencies co-exist although children with the condition present a diverse spectrum of difficulties. Also for Developmental Coordination Disorder to be diagnosed, the child's disturbance should not be due to a general medical condition (e.g., cerebral palsy, hemiplegia, or muscular dystrophy) and should not meet criteria for a Pervasive Developmental Disorder. Further if Mental Retardation is present, the motor difficulties should be over and above those typically associated with it [2].

Epidemiology

Epidemiological studies report prevalence estimates ranging from 5–20% of children ages 5 to 11 depending on criteria used and populations tested [2, 3]. This wide rate of prevalence estimates can be explained by the substantial diversity of the spectrum and the current lack of specific laboratory tests; therefore making diagnosis of the disorder one of elimination of all other possible diseases/causes. No gender differences are thought to exist, although males seem to be more likely to be diagnosed.

Etiology

Several lines of evidence suggest that the condition is due to some form of central nervous system pathology which affects the child's ability to move effectively. This pathology is thought by several theorists to be related to prenatal complications such as fetal malnutrition but there is no strong evidence to support this claim. Developmental Coordination Disorder only received increased research attention in the past one and a half decades and consequently there is still little insight into the specific etiology of the disorder.

Comorbid Diagnoses

Developmental Coordination Disorder is often associated with delays in other non-motor milestones. Associated disorders often include Phonological Disorder, Expressive Language Disorder, Mixed Receptive-Expressive Language Disorder, various congenital problems (e.g., premature birth, low birth weight) and Attention-Deficit/Hyperactivity Disorder. However the literature concerning the link between Developmental Coordination Disorder and these various disorders is inconclusive. For instance it is plausible that Developmental Coordination Disorder and Attention Deficit Hyperactivity Disorder are caused by the same underlying mechanism, or Attention Deficit Hyperactivity Disorder may co-exist in some children who have Developmental Coordination Disorder.

Differential Diagnosis

Several disorders have similar symptomatology. The clinician, therefore, in his/her diagnostic attempt needs to differentiate between the conditions of Mental Retardation, Attention Deficit Hyperactivity Disorder, Traumatic Brain Injury, Mild Cerebral Palsy, Congenital Chorea, Decreased Visual Acuity and Orthopedic Abnormality in order to determine a precise diagnosis.

Developmental Considerations

The manifestations of the disorder vary with age and development. For instance children in early childhood may show delays in the development of gross motor skills

and fine motor skills (e.g., those used for running, climbing, and drawing and for self-care activities such as dressing, tying shoelaces, and buttoning shirts). Children in middle childhood may display difficulties with physical activities that require hand-eye coordination (and most likely they will start to avoid such activities), such as handwriting, catching or throwing a ball, balancing on one foot, or riding a bike. Adolescents will most likely avoid or never participate in physical activity with others since their motor skill performance would be well below that of their peers. Young adults may display difficulties in organization, time management and social interaction.

Prognosis

Although the natural history of Developmental Coordination Disorder is not yet well determined, the preponderance of the existing evidence suggests that the course of the disorder varies significantly from case to case and depends on the severity of the disorder. The motor skills difficulties of most children with Developmental Coordination Disorder persist at least into adolescence, while for many the symptomatology will last into adulthood [2, 4, 6]. Furthermore, evidence suggests that although the specific mechanisms are not yet determined, the developmental course of Developmental Coordination Disorder results in children who are more likely to have poor social competence, academic problems, behavioral problems, low self-esteem, and are less likely to be physically fit or to participate voluntarily in motor activities [3, 6].

Treatment

At present there is no known cure for Developmental Coordination Disorder. The line of empirical evidence deriving from clinical studies that utilized large sample sizes and rigorous methodologies to evaluate sensory integration, perceptual motor, and process-oriented treatment methods [5, 7, 10] reached the conclusion that treatment was minimal to non-existent. A single study that documented small improvement in movement skill development suggested that improvement could be attributed to increased confidence and willingness to participate in motor tasks on behalf of the child rather than the treatment itself [9]. Current ongoing clinical trials focus on establishing whether occupational and physical therapy may potentially lead to an improvement in the child's perceived self-competence and willingness to engage in physical activity. Cognitive interventions are also currently under empirical investigation but the evidence for their efficacy is still inconclusive. Future direction for research needs to focus on individualized approaches to treatment given the diverse spectrum of difficulties that characterize children with Developmental Coordination Disorder.

Prevention

Currently there are no known preventative measures for Developmental Coordination Disorder. Nonetheless appropriate prenatal care and healthy nutrition throughout pregnancy could potentially be of help since both of these factors are considered to be of substantial contribution towards prevention of a diverse spectrum of childhood disorders.

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Developmental Delay

►Profound Mental Retardation
►Severe Mental Retardation

Developmental Disabilities

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Synonyms

Cognitive disabilities; Intellectual disability; Learning disabilities (as chiefly used in the United Kingdom); Mental retardation; Mild mental retardation; Moderate mental retardation; Profound mental retardation; Severe mental retardation

Definition

Developmental disabilities are severe disabilities, first manifested before adulthood, that are attributable to mental and/or physical impairments, likely to continue indefinitely, and which substantially limit the capacity for independent functioning.

Description

The term "developmental disabilities" came into common use in the United States following its appearance in "The Developmental Disabilities Services and Facilities Construction Act of 1970" (Public Law No. 91–517) [3], a federal law that provided for the development of a comprehensive array of basic services designed to meet the needs of individuals who exhibited a developmental disability. A review of the Public Law No. 91–517 indicates that this early definition of developmental disability was closely tied to the concept of mental retardation. Indeed, Public Law No. 91–517 was written to amend the "Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1963" (Public Law No. 88–164) [4], a bill that was signed into law weeks before the assassination of President John F. Kennedy. Whereas Public Law No. 88–164 routinely referred to "the mentally retarded," Public Law No. 91–517 emphasized "developmental disability" and defined it as follows (p. 1325):

> The term "developmental disability" means a disability attributable to mental retardation, cerebral palsy, epilepsy, or another neurological condition (. . .) found to be closely related to mental retardation or to require treatments similar to that required for mentally retarded individuals, which disability originates before (. . .) age 18, which has continued or can be expected to continue indefinitely, and which constitutes a substantial handicap to such individual.

In the succession of laws that followed Public Law No. 91–517, the formal legal definition for developmental disabilities evolved to its current form, as outlined in the "Developmental Disabilities Assistance and Bill of Rights Act of 2000" (Public Law No. 106–402; pp. 1683–1684) [2]:

> The term "developmental disability" means a severe, chronic disability of an individual that – (i) is attributable to a mental or physical impairment or combination of mental and physical impairments; (ii) is manifested before the individual attains age 22; (iii) is likely to continue indefinitely; (iv) results in substantial functional limitations in three or more of the following areas of major life activity:
>
> (I) Self-care
> (II) Receptive and expressive language
> (III) Learning
> (IV) Mobility
> (V) Self-direction
> (VI) Capacity for independent living
> (VII) Economic self-sufficiency; and
>
> (v) reflects the individual's need for a combination and sequence of special, interdisciplinary, or generic services, individualized supports, or other forms of assistance that are of lifelong or extended duration and are individually planned and coordinated.

It should be noted that Public Law No. 106–402 also provides that individuals under the age of 10 years may be considered to exhibit developmental disability without meeting the above criteria, provided that the young child demonstrates significant development delay or specific condition that indicates a high probability that the child, without assistance, would eventually meet the above criteria.

As used today, "developmental disability" emphasizes a generic notion of functional disability, first evidenced during the developmental period, which reflects the person's often lifelong need for individualized services, support, and assistance. Because the "developmental disability" does not specify a precise nature or etiology of the functional disability, persons who are considered to exhibit a "developmental disability" may carry one or more of a variety of relatively diverse individual diagnoses, including mental retardation, autism, more involved forms of cerebral palsy and epilepsy, fetal neurological disorders (e.g., fetal alcohol syndrome), traumatic brain injury, and syndromes secondary to chromosomal abnormalities (e.g., Down, fragile X, Cri du chat, Prader -Willi, Turner).

Epidemiological studies suggest that approximately 1–2% of the population exhibits some form of developmental disability [1], with a 2:1 male to female ratio. Depending on the nature of their developmental disability,

persons often experience a higher rate of physical and/or mental health problems. For example, Down syndrome is associated with a greater risk for congenital heart defects and fragile X syndrome, for social phobia.

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Developmental Disorder of Motor Function

►Developmental Apraxia

Developmental Dyslexia

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Synonyms

Dyslexia; Learning disability; Learning disorder; Reading disability; Reading disorders

Definition

Developmental dyslexia is a specific learning disability that is characterized by difficulties with accurate and/or fluent word recognition, spelling, and decoding skills.

Description

Symptoms

Individuals with developmental dyslexia have pervasive difficulties with identifying words accurately, letter-sound associations, and spelling. While previous theories of developmental dyslexia include the role of visual processes and the notion that many children with dyslexia "read backwards," current research studies reveal that visual processing is not the core deficit in children with this particular reading disability. There is a strong consensus among researchers in the field that the core deficit in dyslexia reflects the language processing system, where the child has difficulty understanding and distinguishing sounds in language. These difficulties are often unexpected in relation to the child's intellectual abilities and the provision of appropriate classroom instruction. Secondary symptoms may include problems in reading comprehension and reduced reading experiences that can impede the growth of vocabulary and fluency skills.

Prevalence and Incidence

Given the inconsistent definitions of dyslexia during the past several decades, the reported prevalence of dyslexia varies. According to the American Psychiatric Association [1], the prevalence of Reading Disorder (or dyslexia) in the United States is estimated at 4% of school-age children. The British Dyslexia Association [2] also estimates the prevalence of dyslexia at 4%. *The International Book of Dyslexia* [10] revealed statistics from 14 different countries around the world and stated that the range of incidence is from 1% to 11%.

Phonological Hypothesis

Children with developmental dyslexia are believed to have poorly developed phonological processing that make it difficult for them to acquire early reading skills, particularly *phonological awareness*. Related studies also identified additional skills to be associated with reading success such as *rapid automatic naming* (RAN), which is the ability to name visual symbols (e.g., letters, numbers, or colors) quickly and accurately [4]. Thus, Wolf and Bowers [12] proposed the "double deficit" hypothesis, which suggested that individuals with dyslexia have deficits in both phonological awareness and rapid naming skills. Additional studies have also implicated *orthographic awareness,* which is the ability to discriminate the symbolic structure of written language accurately and fluently, as deficient in children with developmental dyslexia.

Causes

There has been recent evidence that developmental dyslexia stems from a neurobiological basis. Researchers have documented the disruption of several neural systems of children with developmental dyslexia across languages and cultures. For example, in individuals with developmental dyslexia, functional magnetic resonance imaging (fMRIs) shows a failure of left hemisphere posterior brain systems during reading activities. These studies also reveal that the word-analysis system, which allows the reader to learn and distinguish sounds system, is localized within

the left parieto-temporal region of the brain. In addition, the word-form system, which allows the reader to recognize whole words automatically, is localized within the occipital-temporal region of the brain. Therefore, the left occipito-temporal system appears to be activated when a child or adolescent has become a skilled and fluent reader, and has put together all the sound and written components of word. However, individuals with developmental dyslexia demonstrate a relative inactivation in both the parieto-temporal (i.e., word-analysis) and occipito-temporal (i.e., word-form) regions of the brain.

Developmental dyslexia also has a strong genetic influence. The disorder is found in 25% to 65% of the children of parents who have the disorder, and approximately 40% of siblings of children with developmental dyslexia are also affected. Interestingly, a higher heritability for developmental dyslexia has been reported in children with higher IQs. The genetic transmission can account for at least 50% or more of the variance explained by genetic factors, while the remaining variance can be attributed to environmental influences. Based on these genetic findings, if a child has a parent or sibling who has developmental dyslexia, that child may be considered at risk for future reading difficulties.

Diagnosis

Practitioners cannot diagnose developmental dyslexia based on a single score from a reading test. Developmental dyslexia is a clinical diagnosis, primarily made by experienced practitioners (e.g., clinical psychologists) who have taken a careful developmental, educational, and family history, observed the child or adolescent reading a passage, and administered a battery of tests that assess the child's cognitive ability and academic skills including reading fluency, accuracy, and comprehension, spelling, mathematics, and language skills [7]. Although attention has focused on the student's difficulties in reading print, the ability to notice, manipulate, and remember sound elements has an important function in reading as well. Therefore, the child may exhibit problems with oral language, though these problems are likely more subtle than observed in reading. Oral language problems include mispronunciations, difficulties in verbal memory and/or producing verbal responses, and confusing words that sound alike (e.g., saying "spill" instead of "still").

Though referral rates in school systems indicate that 60–80% of individuals with reading disabilities are male, this may be due to traditional and biased school-based referral procedures [6]. However, it is important to emphasize that children who are receiving special education services under the category of "reading disability" may not necessarily have dyslexia, which is a clinical diagnosis. Nevertheless, it is suggested that developmental dyslexia occurs at equal rates in males and females if practitioners were to use a common definition and criteria to assess reading disabilities [1]. Without remediation, approximately 70% of students with reading disabilities in third grade may continue to struggle with reading problems through high school and into adulthood [8].

Treatment

A majority of early interventions for children at risk for dyslexia focused on improving skills such phonological processing or initial letter and word identification skills in kindergarten and the first grade. Classroom interventions, pullout remedial approaches, or a combination of both approaches reported positive results in students' reading skills [9]. Many studies suggested that prevention programs that explicitly focus on phonemic awareness, letter and word identification, and meaning of text in the earliest grades of reading instruction reduce rates of at-risk students in elementary school [11]. Although it is difficult to determine whether these young children have dyslexia because they are typically just learning to read, it appears that these systematic prevention programs can significantly improve basic reading skills in the weakest readers at these very young ages.

For older students with developmental dyslexia, research exploring different intervention programs includes direct instruction and strategy-based approaches. Direct instruction consists of extensive professional development component that helps teachers understand rationales for using this particular approach to reading instruction, lesson plans, and group strategies [5]. The curriculum also extends beyond phonics into fluency and comprehension where instruction is mostly focused on for upper elementary school students. Peer-tutoring interventions have often been used to improve reading skills. For example, the *Peer-Assisted Learning Strategies* (*PALS*) has been used to facilitate small group instruction and cooperative learning activities within the classroom [3]. Peer tutors are essentially trained to become reading teachers for their peers in order to increase fluency and comprehension skills.

Since developmental dyslexia represents a disparity between an individual's reading skills and intellectual abilities, accommodations in the classroom are essential for success. A number of studies are currently looking at the neurobiological bases of the disorder; therefore, evidence-based interventions will continue to be developed in order to activate these neural systems that are affected. With accommodations and support from families and schools, individuals with developmental dyslexia can still succeed in many different professions and endeavors.

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Developmental Dyspraxia

►Developmental Apraxia
►Developmental Coordination Disorder

Developmental Milestones

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Synonyms

Developmental norms; Developmental periods

Definition

A set of specific skills that are age-specific which children should be able to perform.

Description

Developmental milestones usually address children's development of social skills, cognitive skills, emotional skills, and physical skills. Each age level has different skills that are normally exhibited by children. It is important to note that each child progresses at their own pace within the developmental milestones.

For example,

References

1. Casper/THeilheimer book *ECED learning together*
2. *Teaching young children in multicultural classrooms* book

Developmental Neuroscience

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Definition

Developmental neuroscience is that branch of neuroscience that is specifically interested in the development of the nervous system. This ranges from the study of simple invertebrate creatures to humans. As a discipline it is also interested in the development of nervous system dysfunction, pathologies, trauma and aging. Its research methods may include traditional biological research and animal studies as well as in vitro cell generation and computer modeling.

Description

Developmental neuroscience is devoted to research to further the understanding of how neural systems develop and perform their complex tasks. Animal studies are used both to understand the function for the animal but more critically as a means to understand human neuronal development. Developmental neuroscience seeks to explain both normal and abnormal neuronal development as a means to further understanding of human function and as a way to treat, prevent or ameliorate developmental diseases, dysfunctions and pathologies. Developmental neurosciences is also interested in the neuronal changes associated with aging so as to slow or counteract some of the negative aspects of this process.

Relevance to Childhood Development

Developmental neuroscience provides research and understanding into both normal and abnormal nervous system development. This knowledge is critical to developing strategies and programs for facilitating maximum developmental opportunities for children. For example, it was developmental neuroscience that highlighted the critical importance of the frontal lobes in executive function and decision making and how late in the development of the child these structures become fully connected and functional. Developmental neuroscience has also been largely responsible for the creation of Developmental Neuropsychological Assessment tools and tests. Awareness of the findings and research of developmental neuroscience is critical to maintaining a relevant and beneficial approach to childhood development.

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Developmental Norms

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Synonyms

Age equivalents; Developmental milestones; Developmental stages; Grade equivalents

Definition

Defined standards of typical performance by which a child's development in a variety of domains can be measured.

Description

Developmental norms are used to assess whether infants, toddlers, children, and/or adolescents are developing cognitive, communication, motor, socioemotional, and adaptive skills at approximately the same rate as their peers. Developmental measures establish typical levels of performance for the test's target population (based on the performance of the test's norm sample) in each of the age group or grade levels that the target population comprises; test-takers are assigned age equivalent or grade equivalent scores based on the median raw score for that chronological age or grade level. For example, a 36-month-old child whose overall performance on a measure of motor functioning was equivalent to that of the typical 24-month-old child in the norm sample could be assigned an age equivalent score of 24 months. Children who demonstrate delays in one or more developmental domains when compared to peers may, depending on the extent of the delay(s) and on applicable laws in the state or country where the child resides, be found eligible for early intervention, special education, or other services to address their specific needs.

When attempting to interpret test results that are based on developmental norms, it is important to remain mindful of the context in which the test was developed and normed, as well as the diversity of the individuals in the norm sample. The specific behaviors considered to be critical developmental milestones, and when these behaviors typically occur, may vary significantly from culture to culture. Additionally, disparities in individuals' access to resources and environments conducive to learning and practicing various behaviors may impact whether individuals appear to meet developmental milestones at the expected time. For example, some developmental measures assess whether adolescents can successfully and independently navigate their neighborhoods on foot and/or via public transportation; individuals who live in rural areas might possess the underlying skills necessary to successfully perform these behaviors, but have no occasion to do so. Evaluators must attempt to determine whether a child who does not exhibit behaviors generally thought to be typical of that child's age or grade level is not *capable* of performing the behaviors, or simply has not had the *opportunity* to perform those behaviors.

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Developmental Outcomes

►Multifinality

Developmental Pathways

►Multifinality

Developmental Periods

►Developmental Milestones

Developmental Phonological Disorders

►Phonological Disorders

Developmental Psychology

►Child Development

Developmental Stages

►Developmental Norms

Developmental Test of Visual-Motor Integration

Synonyms

Beery-Buktenica Developmental Test of Visual-Motor Integration; Beery VMI

Definition

A neuropsychological test assessing visuoconstructive abilities. Visual-motor integration tests are designed to assess an individual's ability to integrate their visual and motor abilities. Currently, the most widely used and researched test of this kind is the Beery-Buktenica Developmental Test of Visual-Motor Integration.

Description

The Developmental Test of Visual Motor Integration or Beery VMI is a developmental sequence of geometric forms that are copied with paper and pencil. The purpose of assessing visuoconstructive abilities is to help identify children who may need special assistance, to obtain needed services for them, and to test the effectiveness of educational and other interventions. The Full Form 30-item Beery VMI can be administered either in a group or individual format and typically takes 10 to 15 minutes. The test is used for children ages 2 through 18 years of age. The Short Form 20-item version is available for children ages 2 through 7. Two optional standardized tests, the Beery VMI Visual Perception test and Beery VMI Motor Coordination test, are also available and provide relatively pure measures of visual and motor performance. The Beery VMI is now in its 5th edition, having been standardized five times between 1964 and 2003 with a total of more than 11,000 children. Research suggests that this test is virtually culture-free.

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Developmental Trajectories

►Multifinality

Deviation IQ

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Synonyms

Intelligence quotient; IQ; Norm-referenced IQ; Standard scores

Definition

A type of normally distributed standard score (with a mean of 100 and a standard deviation of 15) that represents level of performance on tests of cognitive ability.

Description

Prior to the advent of the deviation IQ, cognitive test scores were derived by dividing a child's measured *mental age* by that child's chronological age. Similar in nature to today's age equivalent scores, mental ages were calculated by finding the typical score obtained by children at each age level on a test; children earning the median raw score for a given age were assigned that age as a mental age score. In 1914, William Stern first referred to this type of score as a "mental quotient." Two years later, test developer and intelligence researcher Lewis Terman began multiplying this ratio by 100 to obtain an integer, rather than decimal, score, which he referred to as an "intelligence quotient." Thus, a 9-year-old who obtained a mental age of 6 years on a cognitive ability test would have a measured mental quotient of 0.67 and an intelligence quotient of 67. This type of IQ score is also known as a *ratio IQ* due to the methods used in its calculation.

While ratio IQs are simple to calculate, they have several shortcomings. First, while they can convey that an individual has scored above or below expected levels for his or her age, they do not provide precise information on how an individual has performed relative to peers. Additionally, ratio IQs can shift significantly over time due to lessening or increasing gaps between actual and expected performance; since overall intelligence level is generally conceptualized as a relatively stable psychological trait, these shifts are undesirable. For example, a 4-year-old who obtained a mental age of 6 on a test would be assigned a ratio IQ score of 150; however, if that child was retested 2 years later (i.e., at age 6) and again obtained a mental age score two years above chronological age (i.e., age 8), the child's ratio IQ score would drop to 133. Additionally, given that many cognitive abilities either remain relatively stable or begin to decline in adulthood, the calculation of ratio scores for adults is generally considered inappropriate and potentially misleading.

Given these issues, it is unsurprising that ratio IQ has been largely replaced in modern norm-referenced cognitive testing by the *deviation IQ*, though some researchers working with highly intellectually gifted children continue to calculate ratio scores in order to illustrate the significant difference between those students' actual and expected performance. Deviation IQ scores have a mean of 100 and a standard deviation of 15. As with Terman's ratio IQ score, typical levels of performance are represented by deviation IQ scores of 100; however, deviation IQ scores are calculated via statistical transformation of raw scores to a normal (or Gaussian) distribution of standard scores, rather than by dividing mental age by chronological age. In this system of scores, approximately 68% of IQ scores fall within one standard deviation from the mean (i.e., between 85 and 115), and approximately 95% of scores fall within two standard deviations of the mean (i.e., between 70 and 130). Due to the properties of the normal distribution curve, each deviation IQ score that can be obtained on a test is associated with a fixed percentile rank (i.e., the percentage of cases falling below that level of performance); for example, a score of 130 will always fall at the 98th percentile. Therefore, deviation IQ scores address one of the major shortcomings of ratio IQs by providing information on the typicality of an individual's level of test performance. Additionally, since they represent relative standing within a group, they tend to be more consistent (and thus more reliable) as an individual's age changes than ratio IQ scores. Finally, the use of standardized deviation IQ scores enables more direct comparison of performance levels across tests than ratio IQ scores.

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Dewey, John

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Life Dates

1859–1952

Introduction

John Dewey was an educator, psychologist and philosopher, who had a profound impact on American education during the first half of the twentieth century. He, along with Charles Sanders Peirce and William James, is recognized as a leading proponent of American pragmatism. Dewey is best known for his progressive approaches to education but wrote on a variety of topics. He was

considered to be a public intellectual and world renowned lecturer who commented on the moral implications of many societal issues including democracy and freedom, women's suffrage, and race relations.

Educational Information

John Dewey attained his early education in the public school system of Burlington, Vermont. He attended the University of Vermont from which he graduated in 1879. After teaching high school, Dewey enrolled in John Hopkins University in 1882 to pursue a doctoral degree in Philosophy, which he completed in 1884. At Johns Hopkins, Dewey studied pragmaticism under C.S. Peirce. He furthered his interest in Hegelian philosophy with George Sylvester Morris and learned the scientific methodology of experimental psychology from G. Stanley Hall. These professors strongly influenced Dewey's theoretical development and approaches to education, psychology, and philosophy.

Accomplishments

Dewey as College Professor

Dewey taught Philosophy at the University of Michigan between 1884 and 1894, with the exception of 1 year when he taught at the University of Minnesota. In 1894 Dewey became Professor of Philosophy and Pedagogy at the University of Chicago. At the University of Chicago, Dewey founded a Laboratory School for prospective teachers in which he was able to apply his educational methods and theories. He also supported Jane Addams' Hull House in which his progressivism was applied. In 1904 Dewey accepted a position at Columbia University as a professor of philosophy. He retired from Columbia in 1930 but continued teaching as Professor Emeritus until 1939. Dewey was a prolific writer who published approximately forty books and 700 articles.

Dewey as Author/Scholar

John Dewey was a political and social activist. He was a president of the American Philosophical Association. He founded and was the first president of the American Association of University Professors, as well as first president of the League for Independent Political Action. He was also a president of the American Psychological Association. He assisted in founding the National Association for the Advancement of Colored People. In 1937, he chaired the Commission of Inquiry into the Russian government's charges against Leon Trotsky. He was also involved in the establishment of the New School of Social Research in New York City.

Contributions

Dewey and Philosophy

Dewey's form of pragmatism, called instrumentalism, proposed that individuals used their cognitive understanding of various experiences as tools or ideas to solve problems. If these ideas or tools were effective in solving problems or improving a situation they were perceived as truths. Because truths varied according to context and experience, reality must also be changeable, as opposed to eternal and static. Realities are progressively reorganized as ideas/truths and empirically applied in various experiences. Dewey believed that morality was an integral part of instrumentalism as it represented the individuals' sense of responsibility in applying ideas and changing realities. Dewey's philosophical and psychological understanding of the impact of lived and practical experience on learning, its relation to moral development and their accompanying impact on society were reiterated throughout his writing. This is particularly pertinent in Dewey's perspectives on education and child development.

Democratic Principles in Education

According to Dewey the application of democratic principles in American Education should reflect the claim that America is a democratic society. He defined democratic principles in education in terms of "the participation of all members on equal terms." He claimed that democratic practices in education should afford individuals a personal interest in social relationships and control and the habits of mind which secure social changes without introducing disorder.

Education and Moral Principles

Dewey argued that schools must prepare students to live a moral life (1909). He defined moral life as a combination of social acumen, the capacity of observe and understand social situations; and social power, trained capacities of control, working in the interest of social motives and concerns. Dewey claimed that moral principles were comprised of both psychological and social aspects. The psychological aspect pertained to individual thought and behavior while the social aspect referred to how the individual might relate to society. The impact of social interests was so powerful that they were, by association, assimilated into moral principles or requirements [3].

The purpose of schooling was to train individuals in moral principles, thereby preparing them for social life, through the replication of typical social conditions [2, 4]. These objectives should be accomplished by reviewing society's needs and determining the school's relationship

to those needs. He viewed school as an embryonic version of society. He noted that school settings should reflect social change [4, 5]. He warned that trying to develop social character without knowledge of society's needs and aims was like teaching a child to swim outside of the water.

Dewey complained that the conception of ethics in education remained aloof from actual social practices and requirements, Schools failed as social institutions because they perpetuated a mythical separation between intellectual and moral pursuits, Dewey admonished that moral behavior in and outside of school involved the same principles. Unfortunately, moral instruction was limited to teaching about selected virtues and attempting to inculcate students with certain values pertaining to those virtues. Dewey [2] observed that moral training in school focused on discipline. He proposed that such training was pathological because it was not representative of social conditions and because it emphasized punishment rather than the formation of positive social habits. He stated that any system that resulted in the recognition of failure over the recognition of achievement was perverse. He classified "promptness, regularity, industry an response for others' rights as school duties not life duties" (p. 17).

Education and Experience

Dewey defined education as the continuous reconstruction of experience [1, 6], He defined three resources within the school that could be used for such instruction; the curriculum, methods of study, and the life of the school as a social institution.

Dewey recommended that studies be judged and adopted on the basis of their potential to enhance students' social consciousness, to train them to perceive social interests and enable them to use their abilities for social motives, He cited manual training as an example of study that would expedite the formation of socials habits. He also advocated the use of group work and self-government to enhance cooperation and promote leadership skills among students.

Education and Moral Development

Dewey [2] identified three levels in moral development through which the individual progressed summarized by Kohlberg [7] as follows:

1. The pre-conventional level of behavior "motivated by biological and social impulses with results for morals"
2. The conventional level of behaviors in which "the individual accepts with little critical reflection the standards of his group"
3. The post-conventional of behavior in which "conduct is guided by the individual thinking and judging for himself whether a purpose is good and does not accept the standard of his group without reflection (p. 670)"

Dewey felt that education's major task was to provide the appropriate catalyst to move children from one level to the next [1, 6]. He proposed that a moral life could be achieved only it the individual was able to perceive his socially-required goals and work toward their attainment. However, Dewey [2, 4] stressed that the significance of explicit moral instruction. Teaching about moral values was relatively minute and unimportant in comparison with implicit moral instruction which was the more critical of the two. Moral instruction entailed the development of character using all aspects of moral life.

Dewey's theory of moral development provided a basis for later empirical and theoretical work in this area, profoundly influencing the work of Lawrence Kohlberg and the fields of moral development and moral education.

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Dex

►Dextroamphetamine (Dexedrine, Dextrostat)

Dexadrine

►Stimulant Medications

Dexamphetamine

►Stimulant Medications

Dexamyl (Mixture with Amobarbital)

►Dextroamphetamine (Dexedrine, Dextrostat)

Dextroamphetamine

►Dextroamphetamine (Dexedrine, Dextrostat)

Dextroamphetamine (Dexedrine, Dextrostat)

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Synonyms

Adderall/Adderall XR (mixture with other amphetamines); Dex; Dexamyl (mixture with amobarbital); Dextroamphetamine; Dextrostat; Scop-Dex (mixture with scopolamine); Speed; Vyvanse (prodrug of dextroamphetamine)

Definition

A psychostimulant utilized in the treatment of attention deficit-hyperactivity disorder (ADHD), chemically derived from amphetamine, which has been shown to reduce hyperkinetic or hyperactive behavior, and affect motor activity, vigilance, learning, and mood. Similar to Ritalin, Cylert, and other amphetamines, Dexedrine is a highly-controlled drug under various drug control laws (U.S. Schedule II, UK Class B, etc.).

Description

Introduced in 1937 by Smith, Kline, and French (SK&F), Dexedrine found wide acceptance among physicians in the treatment of ADHD (then diagnosed as "minimal brain dysfunction"), narcolepsy, depression, and ►obesity. A 1950 study of Dexedrine use [1] in children found that 50–60% of the drug's users had become more subdued and 20% showed increased behavior, 60–75% of students showed symptomatic improvement, 10–15% unfavorable responses, and 15–25% no apparent change [1].

In the 1950s, SK&F introduced an extended-release version of Dexedrine, called Dexedrine Spansule, available in 5, 10, and 15 mg dosages. Dexedrine Spansule is a coated capsule containing pellets of the active ingredient. Around the late 1950s, Dexamyl, a combination of Dexedrine and Amytal (amobarbital), a barbiturate tranquilizer, was introduced. In the 1990s, Adderall and Adderall XR, popular treatments for ADHD were introduced. Adderall contains roughly 75% dextroamphetamine and its isomers.

Dexedrine is the active metabolite of Vyvanse (lisdexamfetamine), a prodrug, or inactive drug which is metabolized in vivo into a substance which produces the desired effect with, some claim, less abuse liability through insufflation. Despite this hypothesis, it is similarly classified as a Schedule II drug by the DEA and was FDA-approved in 2008.

Studies in children generally indicate that, like methylphenidate (Ritalin SR-20) and the now-discontinued pemoline (Cylert), Dexedrine "had an effect within 2 h of ingestion, and the effects lasted for 9 h" [2]. In a 1980 study comparing Dexedrine's effects in normal men and normal and hyperactive boys, "both groups...showed decreased motor activity, increased vigilance, and improvement on a learning task after taking the stimulant drug. The men reported euphoria, while the boys reported only feeling "tired" or "different" after taking the stimulant. It is not clear whether this difference in effect on mood between adults and children is due to differing experience with drugs, ability to report affect, or a true pharmacologic age-related effect" [10].

Other uses – including off-label uses – for Dexedrine besides as treatment of ADHD include narcolepsy, palliative care to ease the pain of terminal cancer patients [3], as an appetite suppressant to lose weight [3], mixed with scopolamine to counteract "space sickness" in astronauts [4], and, around the 1960s, as an antidepressant, though, as tolerance to its mood enhancing effects became apparent, it lost efficacy for many patients and today is not commonly used as an antidepressant [3]. Modern use of Dexedrine for weight loss is discouraged and according to some doctors has "no place in the treatment of obesity" [8].

In 1995, the U.S. Army studied Dexedrine [5] for administration to combat aircraft pilots and determined it was effective in sustaining helicopter pilot performance during brief sleep loss, without adverse effects [5].

The specific mechanism of action Dexedrine has in the mind, as with other amphetamines and many pharmaceuticals, is unknown. "We really cannot fully explain, biochemically or physiologically, how the drug works in attention deficit disorder. There are many theories, but they are just that: theories," said Dr. Ron Kartzinel of

Dextroamphetamine (Dexedrine, Dextrostat). Fig. 1
A prescription of Dexedrine Spansules.

Ciba-Geigy, a pharmaceutical company which manufactures the drug [6].

Dexedrine is listed in FDA Pregnancy Category C, and its possible side effects include cardiovascular palpitations, tachycardia, blood pressure elevation, overstimulation, restlessness, dizziness, insomnia, euphoria, dyskinesia, dysphoria, tremor, headache, exacerbation of motor and phonic tics, Tourette's syndrome, dryness of the mouth, unpleasant taste, diarrhea, constipation, anorexia, weight loss, urticaria, impotence, and libido changes [7].

Nonetheless, according to the Associated Press, "most experts agree (stimulants including Dexedrine) are safe and effective" [6] and scientific studies indicate "behavioral improvement that was clearly distinguishable from placebo" [9].

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Dextrostat

►Dextroamphetamine (Dexedrine, Dextrostat)

Diabetes

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Synonyms

Diabetes mellitus; Juvenile diabetes mellitus; Type 1 diabetes; Type 2 diabetes

Definition

Diabetes is a chronic disorder of metabolism that causes the body to improperly use the energy or glucose it receives from food.

Type 1 Diabetes Mellitus is a disease in which the pancreas does not produce sufficient amounts of insulin.

Type 2 Diabetes Mellitus occurs when the body fails to respond appropriately to insulin.

Description

Diabetes is a chronic disorder of metabolism that causes the body to improperly use the energy or glucose it receives from food. It is caused by an inadequate production of insulin, which regulates the metabolism of carbohydrates.

Insulin is produced in the beta cells of the pancreatic islets of Langerhans. Damage to the beta cells results in lowered or a complete lack of production of insulin.

Type 1 Diabetes or insulin-dependent diabetes mellitus, is a common, chronic illness in childhood affecting 0.2% of school-age children under the age of 20 [6]. It is an autoimmune disorder where the immune system

attacks itself and destroys the beta cells. A lack of insulin results in high levels of blood glucose also referred to hyperglycemia. When glucose levels are elevated, the body begins to use fat from adipose tissue as its second line of energy. Rapid weight loss, constant hunger, polydipsia (thirst), polyuria (frequent urination), moodiness, and lethargy are common symptoms of ketoacidosis [5]. Many children are diagnosed from the occurrence of these symptoms.

Parents and children must be vigilant in the management of the disorder and can result in risk for hyperglycemia, hypoglycemia or Diabetic ketoacidosis. Hyperglycemia is high levels of glucose not compensated for by insulin. Hyperglycemia or high levels of blood glucose is extremely serious and suggests that too little insulin is present and that the diabetes is not under control. This may be caused by missing medications, insufficient insulin levels, and failure to adhere to a prescribed diet and exercise plan. Symptoms include excessive thirst and urination, headache and nausea. Very high, uncontrolled blood glucose levels can result in coma or death.

Hypoglycemia also referred to as insulin reaction or diabetic shock is described by low levels of blood glucose [1, 4]. It can result from inadequate levels of insulin, strenuous exercise or a missed or delayed meal. Symptoms include dizziness, weakness, impaired thinking, headache, and shakiness. Treatment includes giving the child some form of concentrated sugar.

Diabetic ketoacidosis occurs in response to an insufficient level of insulin. It can lead to coma or death if not treated or if treated improperly [1, 4]. Parents and children's roles regarding the management of Type 1 diabetes are universal across socioeconomic status (SES), ethnicity and gender and seem to become more prevalent when the child enters adolescence.

Historically considered an adult disorder, Type 2 Diabetes or non-insulin dependent diabetes mellitus, is increasingly diagnosed in children [2]. In Type 2 Diabetes, the cells of the body become resistant to insulin, not allowing the insulin to move into the cells in sufficient quantity. The reduced sensitivity to insulin is related to the high levels of insulin in the blood. If the deficiency is diagnosed at this time, the individual can take medication to improve insulin sensitivity or produce less glucose by changing diet, increasing exercise and taking medication. However, if the disease goes unnoticed, insulin replacement therapy is vital to the body's function [2]. Risk factors affecting the onset of Type 2 Diabetes are body mass index in overweight range, family members diagnosed with diabetes, lack of exercise, hypertension, elevated levels of LDL cholesterol, and ethnic background of African American, American Indian, Asian American, Pacific Islander, or Hispanic American/Latino [3].

Sedentary lifestyles and poor diets rich in high fats, cholesterol and carbohydrates are seen as major precursors to T2DM besides the aforementioned risk factors. In contrast, proper nutrition and regular cardiovascular exercise are two preventive factors for this disease [1].

Relevance to Childhood Development

Regardless of age of onset, children as well as their families are significantly impacted by Diabetes. Adjusting to and managing the disorder takes time and effort from the child, parents and other adults in their life. Management of the disorder may include frequent endocrinologist visits, new meal plans consisting of low-fat and/or low-carbohydrate diets, learning about glucose and insulin management, and constant supervision regarding their child's medical adherence, within the context of the typical developmental challenges of childhood. Adherence to Diabetes management is difficult in that the child must be injected with insulin two or more times a day in order to maintain adequate blood glucose levels. The child must learn to become aware of various food and meal planning to balance their blood glucose levels.

Failure to comply with medication, treatment, and lifestyle modifications can occur due to failure to understand the seriousness of the disorder. Ongoing management of the disorder is necessary to adequately control symptomatology. With appropriate monitoring and supervision, these children can lead typical lives.

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Diabetes Mellitus

►Diabetes
►Juvenile Diabetes

Dialect

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Synonyms

Cant; Language variety; Patois; Vernacular

Definition

A variety of a language with its own rules, different from other varieties of the same language in terms of pronunciation, vocabulary, and structure.

Description

Dialects are considered regional and social varieties of a language, although in certain linguistic situations it is difficult to draw the line between language and dialect [5]. The most noticeable differences among dialects surface in pronunciation, grammar, and vocabulary. Regional dialects are characteristic of certain geographical areas. The boundaries of a regional dialect, which rely on the co-occurrence of several isoglosses, are often not easy to draw, especially since no person speaks exactly the same dialect [2]. Nevertheless, dialect regions are distinguished where several linguistic variables differ from one area to the next. Regional dialects differ in the extent to which they are likely to pass on features to or inherit them from other areas. This fluctuation also means that most often boundaries of regional dialects are not stable.

A social dialect, sometimes a called a sociolect, is characteristic of a social group. Membership in a social group is mainly determined by education, occupation, and income, although other factors like age, gender, religion, or ethnicity may also influence what social dialect a person speaks. Linguistically, all dialects are equal in that they all perfectly fulfill their function. Nevertheless, sometimes a certain variety of a language is considered more empowered than others because of its association with people who are considered successful economically, politically, and socially. Examples are Standard English, High German, Catillian Spanish, or Parisian French. It is not rare for some dialects to be stigmatized as nonstandard varieties spoken by a group of people who are inferior in some measure. Studies by Dennis Preston allow insights into attitudes of non-linguists towards certain dialects in the United States [3].

Dialects are usually studied through extensive fieldwork involving interviews and questionnaires and are usually called studies in language variation, belonging to the field of sociolinguistics. Initially, dialect studies concentrated on regional dialects, and within those, dialects of rural areas. Studies on social dialects are a later development and were partially motivated by methodological flaws in regional dialect studies [5]. Famous studies on social dialects are those conducted by Labov [1], set in New York, and Trudgill [4], exploring Norwich. As it is widely recognized that people are likely to speak different dialects throughout their lives as their circumstances change or in an attempt to adjust to different social situations by adopting different styles, these studies take into consideration not only the social status of the interviewees, but also the social situation. They achieve this by employing tasks with a wide range of their degree of formality from casual conversation to a more conscious, monitored speech.

Whereas the above mentioned studies mainly focus on pronunciation, variation in vocabulary may be more influenced by the related notions of register and jargon. Whereas jargon refers to the characteristic language of a certain occupational group, and is distinct first of all in terms of vocabulary, register characterizes either the vocabulary favored by members of a certain occupational group or the style adopted in a certain social situation. Finally, beyond all the factors mentioned above, a person's dialect also shows the marks of the speech communities to which s/he belongs.

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Dialectal Thought

Dialectal thought is a method of argument central to eastern and western philosophy since ancient times. The word dialectic originates in ancient Greece and was popularized by Plateau's Socratic dialogues. Dialectic involves the practice of a dialogue between two or more people holding different ideas and desiring to persuade each other to shift to the idea of the other. A dialectical argument presupposes that participants, even if they do not agree, share at least some meanings and principles of inference. Different forms of dialectal thought have emerged in the east and west as well as during different eras of history. Major forms of dialectic reasoning are Socratic, Hindu, Buddhist, Medieval, Hegglin, Marxist and Talmudic.

Diaries

►Personal Narratives

Diastat

►Diazepam

Diathesis-stress Model

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Synonyms

Gene–environment interaction; Stress-diathesis model; Stress-vulnerability model

Definition

The diathesis-stress model describes a resulting interaction of genetic vulnerabilities and environmental stress on a person's physical and mental health.

Description

The diathesis-stress model describes how genetic or biological factors interact with environmental stress which results in a disorder or condition. Specifically, this theory purports that an individual's biological vulnerabilities, or predispositions, to particular psychological disorders can be triggered by stressful life events. If the individual is resilient or has low biological vulnerability for a particular disorder, it would take extremely high levels of stress to trigger symptoms of that disorder. On the other hand, if the individual has high biological vulnerability to the disorder, then it would take lower levels of stress for symptoms to be exhibited. Until this critical level of stress is reached, the individual will function normally, and the biological vulnerability would not manifest. Therefore, this model helps to explain why some, but not all, people exhibit psychological disorders, even though they may all experience similar environmental stressors. In addition, there is a reciprocal relationship between stress and the psychological disorder; life stress exacerbates the disorder, and in turn, the disorder makes life more stressful.

Examples of biological factors that are often considered with this model include the person's genetic makeup, cognitions, personality, family history of psychological disorders, brain abnormalities (e.g., birth complications, learning difficulties, traumatic brain injury), or neurological problems. Environmental stress, on the other hand, can be characterized as acute or chronic, which can include parental neglect or abuse, death of a family member or friend, relationship/marriage difficulties, or witnessing a traumatic event. One stressful life event is usually not enough to trigger a psychological disorder, but when negative events become more chronic, a vulnerable person may develop the disorder.

Relevance to Childhood Development

Though the diathesis-stress model has been frequently used in the research literature to describe anxiety, post-traumatic stress-disorder, and schizophrenia, there has been extensive research on this model in explaining symptoms of childhood and adolescent depression. Current research suggests that it is not genetics or environmental factors alone that contribute to the risk of depression. Rather, it is more likely that the genetic component along with stressful environmental factors leads to the higher likelihood of depression [2].

Biological risk factors for childhood depression include maternal depression, anxiety, coping ability, and low self-perception. In particular, the child's cognitive perceptions of a stressful event can be considered a biological risk factor as they affect how a child views

environmental stressors either positively or negatively. Such biological vulnerabilities may interact with chronic or acute environmental stressors. For example, a child may experience various stressors, including maltreatment [4], parent conflict [3], and/or lack of peer friendships or peer bullying [1, 5]. These environmental stressors may thus trigger biological vulnerabilities, which would lead to the child or adolescent to exhibit symptoms of depression. If two children are exposed to the same level of environmental stress, a child who is not biologically vulnerable to depression would be less likely to develop symptoms as compared to a child who is biologically vulnerable.

The diathesis-stress model has been utilized in the field of child development as a way to explain why an individual may have a predisposition to a particular disorder. The interaction between biological factors and environmental stressors varies significantly for each person, child or adult. This model also allows practitioners and researchers to understand the etiology of mental health disorders by considering the biological, psychological, and social domains of the individual.

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Diazepam

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Synonyms

Diastat; Valium; Valrelease; Zetran; 7-chloro-1, 3-dihydro-1-methyl-5-phenyl-2H-1, 4-benzodiazepin-2-one [1]

Definition

A benzodiazepine drug used to treat acute anxiety, induce sleep, and relax muscles. Valium (diazepam) was FDA approved in 1963 to treat anxiety disorders and skeletal muscle spasm, among other conditions. During the ensuing years, Valium was prescribed very liberally, and eventually there was a public backlash by patients who believed they had not been fully informed of the potentially addictive nature of the drug. Today it is available generically and remains a mainstay in hospitals and pharmacies worldwide.

Description

Valium was Leo Sternbach's second benzodiazepine invention at Roche. After Librium (*see CHLORDIAZEPOXIDE*), he "perfected" the molecule and came out with Valium.

Prior to Valium, tranquilizers such as the barbiturates and meprobamate consumed the market. Barbiturates were depicted, rightly, as addictive and easy to overdose on. The book (first published in 1966) and film (1967) *Valley of the Dolls* was a roman á clef that detailed young women's addiction to barbiturates ("dolls") both entered into the public lexicon.

Between 1969 and 1982, no other prescription drug was more popular in America [2]. As written in *The New Yorker:* "Part of Valium's appeal was that, unless it was mixed with other things, Elvis style, it was non-toxic, as Robert McFarlane, Reagan's national-security adviser, discovered during the Iran-Contra scandal, when he attempted to kill himself by downing a couple of dozen Valiums; he recovered several days later, embarrassed but well rested" (ibid. 2).

By 1974, the *New England Journal of Medicine* reported that 15% of American adults between the ages of 18 and 74 have used the drug in a 1-year time period [3], though former FDA officials reassured the public, saying U.S. physicians were "relatively cautious in their prescription of such drugs," [3]. "Relative safety," read a 1974 *New York Times* article, "is cited as chief factor in its huge sales" [3].

However, a backlash was brewing. Although Valium was a novel drug, invented by "an innovator's innovator" [2], and less deadly in overdose than previous tranquilizers, it was not without its problems. With liberal and sometimes careless prescription of Valium by doctors for the most minor ailments, some patients soon discovered that their Valium habit was excruciatingly difficult to kick.

Senate hearings in September 1979 revealed "heavy Valium promotional efforts sometimes targeted at people experiencing such everyday anxieties as 'marital discord and financial tensions'" [4]. An anonymous professional

in Washington said she uses the drug "about once a month. If you break up with a boyfriend, for instance, it's required. It's like oxygen" [7].

Media coverage heightened, exaggerating Valium's risks, but perhaps only to the extent that some doctors and ads underplayed them. "Valium Abuse: The Yellow Peril" [5], "The Uppers and Downers of Middle-Class Prescription-Drug Addicts" [6], and "America's Psychic Aspirin; Valium: Problems with America's 'Perfect' Drug" [7] were some of the sensational titles that led tales of Valium withdrawal being worse than street drugs and the like.

The tone of the media exposés arguably led to negative opinions about Valium and other tranquilizers. A 1980 University of Massachusetts study reported that:

- Seventy percent believe "tranquilizers don't really cure anything; they just cover up the real trouble."
- Eighty-seven percent believe "it is better to use willpower to solve problems than it is to use tranquilizers."
- Eighty percent believe "long-term use of tranquilizers can cause physical harm" [8].

The study also found that "the less education a person has, the more a person believes that 'taking tranquilizers is a sign of weakness'" (ibid. 8).

Later in 1980, "in a striking trend that is a source of growing comfort to many public health experts, American doctors are sharply cutting down their prescriptions for a broad array of sedatives, tranquilizers, painkillers and other psychoactive drugs," [9].

Throughout the 1980s tranquilizers like Valium were still scorned in public, but remain useful in patients with anxiety that interferes with their lives, not "everyday troubles." But, come late 1988, Prozac's introduction took America's short pharmaceutical attention span away from Valium and the benzodiazepines, and onto the new generation of antidepressants: selective serotonin reuptake inhibitors (SSRIs).

Valium is a drug with a well-publicized history of addiction and abuse, but reading all of these headline-grabbing case studies can make one forget the unparalleled usefulness of benzodiazepines in anxiety disorders. When used with moderation and under professional supervision, in clinical cases of anxiety, Valium can alleviate crippling fear and greatly increase a person's mental well-being.

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Diencephalon

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Definition

The Diencephalon is a division of the brain that is located just above the brainstem and includes the Thalamus, Hypothalamus, and Epithalamus, which together influence the regulation of motivated behaviors, internal states, and sensory input.

Description

The Diencephalon constitutes the inferior portion of the brain that includes the Thalamus, Hypothalamus, and Epithalamus. It is located at the head of the brainstem connecting the Cerebral cortex with the lower structures of the brainstem [6]. The Diencephalon, in combination with the Cerebral cortex, Limbic System, and Basal Ganglia constitutes the Forebrain which is the highest functional level of the brain. Functionally, the Diencephalon plays a role in the general regulation of water, body temperature, sleep, food intake, development of secondary sex characteristics, autonomic responses, and endocrine activity [5]. In addition, the Diencephalon is involved in the relay of visual, auditory, and tactile information, as well as a relay station between the cortex and the cerebellum and basal ganglia [5]. As a whole, it may be said that the Diencephalon energizes and sustains behavior [4]. Specifically, structures in this region are centrally involved in motivation, emotion, and the ANS, and in states of awareness, yet the individual structures of the Diencephalon (i.e., Thalamus, Hypothalamus, and Epithalamus)

play different roles in the modulation of these various functions [1].

First, the Thalamus serves a primary relay station for sensory information, aside from olfaction, as well as motor information [3]. While all sensory information, except olfaction, is transmitted through the Thalamus, different nuclei process different forms if sensation. For example, the Lateral Geniculate nucleus receives visual projections whereas the Medial Geniculate nucleus receives auditory projections. Additional nuclei receive projections for touch, pressure, pain, and temperature projections from the body [4]. Motor information is relayed via the ventrolateral as well as other nuclei [2]. In addition to differing in the nature of sensory and motor information in which they process, some nuclei relay information between cortical areas while others relay information from other forebrain and brainstem regions [4]. Aside from the processing of sensory information, the Thalamus also has a critical role in wakefulness through its connection with the RAS and other activating systems [3]. See Chapter Thalamus for more details.

The second structure of the Diencephalon is the Hypothalamus. Functionally, the Hypothalamus' primary influence is its control of the Autonomic Nervous System and its connections with the Pituitary gland that mediate the neural control of the endocrine system [3]. While this reflects a narrow view of the influence the Hypothalamus exerts, broadly, it takes part in nearly all aspects of motivated behavior, including feeding, sexual behavior, sleeping, temperature regulation, emotional behavior, endocrine function, and movement [4].

The final structure of the Diencephalon is the Epithalamus. While the functionality of the Thalamus and Hypothalamus have been well studied, much less is known about the Epithalamus. However, the Pineal body, which is one structure of the Epithalamus, is known to play a role in the regulation of seasonal rhythms [4]. As a result of this tie, the Epithalamus, and more specifically the Pineal body, has been linked to seasonal affective disorder in which individuals experience disturbances of mood and emotionality in relationship to the changing weather and season. For example, in the winter, when there is less daylight, individuals with seasonal affective disorder will experience increases in depressive symptomatology.

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Diet

▶Nutrition

Diethyl Ether

▶Depressants

Difficult Children

▶Temper Tantrums

Dilation and Evacuation (D&E)

▶Abortion

Diphenhydramine (Benadryl)

▶Depressants

Diplo-Y Syndrome

▶XYY Syndrome

Direct Observation

▶Natural Observation

Directing Attention

►Joint Attention

Directive Play Therapy

►Play-Group Therapy

Disability

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Synonyms

Special needs

Definition

Specific categories of exceptionality prescribed by the federal law. A person with a disability is defined as (1) having a physical or mental impairment that limits significantly them in a significant life activity (2) experienced discrimination as a result of physical or mental impairment [1].

Description

Learning disability: have dysfunctions in processing information typically found in language-based activities. They have average or above-average intelligence, but they often encounter significant problems learning how to read, write, and compute. They also may have difficulty following directions, attending to tasks, organizing assignments and managing time. There are several disabilities listed under the Federal Law they include:

Speech or language impairment: extraordinary difficulties in communicating with others for reasons other than maturation, a speech or language impairment is involved. Students with this disability have difficulty with articulating the pronunciation of speech sounds; they may omit words or mispronounce words.

Mental retardation: limitations in intellectual ability and adaptive behaviors. They learn at a slower pace than do other students, and they may reach a point at which their learning levels off.

Emotional disturbance: significant difficulty in the social-emotional domain- enough to interfere with the students' learning-an eating disorder (ED). Difficulty with interpersonal relationships.

Autism: lack social responsiveness from a very early age. Avoid physical contact and do not make eye contact. May display repetitive body movements.

Hearing impairments: the inability or limited ability to receive auditory signals called hearing impairments when students are hard of hearing; they have significant hearing loss but can capitalize on residual hearing and do not benefit from tradition devices such as aids for hearing. They use sign language, speech reading and other ways to help them communicate.

Visual impairments: inability or limited ability to receive information. Some have partial sight and can learn well using magnification devices or other adaptive materials; students who are blind do not use vision as a means of learning and rely on touch and hearing.

Deaf-blindness: significant vision and hearing impairments because of their learning needs in the area of communication and they require highly specialized services.

Orthopedic impairment: physical conditions that impair their ability to move about or to complete motor activities.

Traumatic brain injury: wide range of characteristics of special needs, limited strength or alertness due to developmental delays, short-term memory problems, hearing or vision loss.

Other health impairments: someone who has a disease or disorder so significant it affects their ability to learn in school; the category of disability addressing these needs is called other health impairment.

Multiple disabilities: someone has two or more disabilities. They often have mental retardation and a physical disability.

Developmental delays: someone who has significant delays in physical, cognitive, communication, social-emotional, or adaptive development [2].

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Disabling Chronic Conditions

►Chronic Health Problems

Discipline

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Synonyms

Baumrind's parenting styles; Control; Instruction; Parenting styles; Punishment

Definition

The word discipline is derived from the Latin *disciplina* which means instruction. This word is itself derived from *discere* which means to learn and from which *discipulus* or pupil arises. Discipline, in the field of child development thus refers to instructing a child in the correct ways of behavior including moral behavior.

Description

The goal of discipline is to serve as a guide to acceptable behavior and discipline aims to teach the child self-control and to act responsibly. Discipline aims to make a child capable of behaving appropriately even when the parent or adult is not there to provide guidance [4]. The most important component of good discipline is to praise the child and reward the child's good behaviors rather than focusing on the misdeeds. Psychology has shown that rewards reinforce the rewarded behavior; that is, the behavior is displayed more often in order to continue getting the rewards and good behavior is the goal of discipline [1]. Discipline aims to teach self-control, to respect the rights of others, to act responsibly and to enjoy freedom within limits. When children are behaving well, they should be praised. They do not want to only hear criticism. A parent should aim to catch the child being good, not bad and then reward this behavior.

Parents seeking advice on how best to discipline will encounter a wide range of ideas ranging from very liberal to very strict approaches. These approaches may have their origins in psychology, sociology, anthropology or religious views. Parents frequently rely on their memories of their own child-rearing experiences as guides.

Effective discipline has a number of characteristics [1, 4]. First the parent or authority figure has to determine which behaviors are important. This is the most important first step because these are the behaviors for which there will be expectations for good behavior. These are the behaviors that will have demands or rules attached to them and for which compliance will be expected. As part of this first step, it is important to set the limits and establish the specific guidelines for what is and is not acceptable behavior. It is important for the authority figure to determine exactly what is acceptable because if the adult does not know what is expected, the child cannot know this either. In determining the expectations, it is important to make sure they are reasonable for the developmental level of the child. For example, a 10 year-old can be expected to eat with a fork and use a knife but a 4 year-old cannot. Similarly a 6 year-old can be expected to put socks and underwear in a drawer but not iron a shirt. It is important to recognize that a child will test the rules to see if they are in effect so if rule setting is new in the home, some resistance should be expected when the rules are first introduced [1].

Other components of effective discipline include the following strategies. (1) Offer choices whenever possible. Choices not only help teach responsible decision-making, they allow the child to have a say. For example one can allow a choice between two suitable outfits that the parent finds acceptable rather insisting that the child wear a particular one. It is better to save parental authority for more important decisions. (2) If the misbehavior is trivial it may be better to ignore it. Paying attention to minor infractions may inadvertently reward or reinforce the misbehavior because the parental attention is itself rewarding. In these cases it is better to teach alternatives to misbehavior by being clear about what behavior is preferred. (3) Parents need to be careful not to nag nor discipline by mood. This means that it is hard for a child to figure out what is acceptable behavior if something that was permitted a week ago is not permitted now because the parent is tired, cranky, etc. And like everyone else children tune out nagging, whining voices. A parent needs a child to listen especially when it is important so a child needs to know that when a parent says something that the parent means it, and that no nagging is necessary. (4) This then means that there should be no empty threats, and parenting must be consistent; if the parent says there will be a consequence there must be a consequence, but the consequence should fit the crime. Natural or logical consequences can mean having cold hands if the child refuses to wear the mittens provided. Turning off the television when children cannot agree on the program to watch is another logical consequence. Informing a child that she cannot attend a birthday party in 2 weeks time because she would not eat her vegetables is not a logical consequence and due to the time delay, not only will the child be unable to relate the punishment to the misbehavior, there is a high likelihood this will end up as an idle threat. (5) Time-out is a popular technique that allows a child to calm down and regain self-control. The purpose of

time-out is not to punish the child for misbehaving, but to allow the child to regain the ability to continue participating in the activity. Model the kinds of behavior you expect. Do as you want your child to do. Your child wants to model you so set the right example.

Discipline is not the same as punishment [2, 3]. While discipline should guide a child to appropriate behavior, punishment deals with unacceptable behavior. Punishment involves external control of behavior while discipline or self-regulation comes from within [5]. The goal of discipline is to prevent misbehavior from occurring in the first place. The goal of punishment is to hurt the child after misbehavior has occurred. Punishment means presenting an aversive stimulus to reduce the frequency of a behavior like yelling at a child to stop her from throwing food. This is the opposite of reward, where a positive stimulus such as praise is used to increase the frequency of the desirable behavior. Punishment also refers to removing a positive stimulus like presenting a fine or docking an allowance to punish a misdeed and prevent it from happening again. Punishment, for example, spanking is not highly effective in the long term although it may work in the short term [2–4]. So punishment may lead to immediate compliance but not change the child's behavior in the long term. Punishment teaches that the biggest or most powerful person can inflict harm. Children may try to become devious to avoid punishment, but they still misbehave. They may for example avoid swearing in the presence of the punisher but they still swear. They may lie about their misdeeds. Consider that many adults still speed and only slow down in the presence of the police.

The most controversial approach to discipline involves physical punishment typically in the form of spanking. Spanking is illegal in many jurisdictions however parents and others continue to spank their children. The research evidence strongly suggests that spanking or corporal punishment is not the most effective technique [2–4]. While it may lead to obedience in the short term it fails to guide behavior in the long term. Frequent and severe physical punishment is always ineffective; there is less agreement that occasional mild spanking in the context of a loving parent-child relationship has long term negative consequences. However physical punishment can quickly escalate so that what started out as a small slap may become abusive and thus there are better alternatives to be used.

Relevance to Childhood Development

One of the primary goals of parenting is to teach children how to behave or to discipline the child. Most children can be expected to misbehave from time to time. It is not unusual for a child to lie, steal or fight or cheat. What is more significant in the long run is how long the behaviors persist and how they are handled. Everyday a child has to make choices between right and wrong and it is inevitable that sometimes the child will choose the wrong choice. Setting limits when children are young teaches children to acquire self-discipline which permits children greater self-direction in later life.

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Discriminate

►Discrimination Learning

Discrimination

►Discrimination Learning
►Prejudice

Discrimination Learning

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Synonyms

Conditional discrimination; Discriminate; Discrimination; Stimulus control; Stimulus discrimination

Definition

The process by which animal or human organisms learn to differentially respond to various antecedent stimuli.

Description

Discrimination learning occurs when an organism engages in a particular behavior in the presence of a specific stimulus (also referred to as a discriminative stimulus) but not in the presence of another stimulus (also referred to as stimulus delta). The process of reinforcing a specific behavior in the presence of one stimulus and not any other is referred to as *discrimination training* [1].

Discrimination training refers to reinforcing a specific response in the presence of a particular antecedent stimulus and not in the presence of any other stimulus. When the training procedure is consistently applied, the organism will respond in the presence of the discriminative stimulus, but not the stimulus delta. That is, the organism is less likely to emit the response in the absence of the stimulus in which the response was reinforced. In other words, the antecedent discriminative stimulus comes to evoke the reinforced response more readily in its presence upon future presentations of the stimulus. The momentary increase in the frequency of the reinforced response lasts only as long as the stimulus is present. Thus, the behavior is less likely to occur when a different stimulus or stimuli are present.

A common example used is that of the rat in the operant chamber: Upon the presentation of a light, key-pressing behavior is reinforced with a pellet of food. In the absence of the light, key pressing behavior is not reinforced (e.g., food is not delivered). Over time, the rat begins to press the key *only* in the presence of the light and not in its' absence.

Yet another example might be that of a young child learning to label the letters of the alphabet. For instance, to teach a child to identify letters, the teacher might use the letter "A" as the discriminative stimulus condition and any of the other 25 letters as the stimulus delta condition. Flashcards or any other teaching materials displaying letters from the alphabet could be presented to the student. The vocal response "A" from the student when the teacher holds up the flashcard displaying the letter A would be reinforced (e.g., the teacher might praise the child). However, the vocal response "A" to any other letter would not be reinforced (and might actually be punished by a verbal reprimand such as "no that is not right"). Similarly, only correct vocal responses corresponding to the letter presented would be reinforced for the remainder of the letters of the alphabet (e.g., vocal response "B" to the presentation of the letter). Over time, the student begins to respond "A" in the presence of the letter A and not in the presence of any other letter.

Relevance to Childhood Development

Discrimination learning is essential in childhood development. Understanding the process by which young children learn to discriminate stimuli in the environment can help parents and professionals to develop educational goals when the student is having difficulty acquiring concepts. Although the previous description has been a simplified explanation of the discrimination learning process, it begins only begins to demonstrate the process of concept formation [2].

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Disengaged Parenting Style

▶ Indifferent Parenting Style

Dishabituation

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Definition

Any unconditioned response that is elicited in response to an unconditioned stimulus will show habituation if the stimulus is repeated. That is, measures of the response will show orderly decreases in magnitude as the stimulus is repeatedly applied. Dishabituation refers to the fast recovery of a response that has undergone habituation, typically as a result of the presentation of a novel, strong or sometimes noxious stimulus; dishabituation cannot be divorced from habituation and any description of dishabituation has to be framed within a context of also discussing habituation. Both habituation and dishabituation are observed in the withdrawal responses of invertebrates to tactile stimulation, in the defensive responses of rodents to auditory stimuli, and in the orienting responses of human infants to complex auditory and or visual stimuli, and are some of

the most fundamental properties of behavior [3, 9, 10]. More simply put, habituation is process in which a stimulus loses novelty and decreases in responsiveness to the stimulus are seen when the stimulus is presented repeatedly or for an extended time period. An organism ceases to engage in attending or other responses to the stimulus; the stimulus comes to be ignored. Dishabituation tells us the organism can "tell the difference" between differing stimulus events; one stimulus has become familiar and is no longer responded to, the novel stimulus still elicits a response due to its novel properties. The recovery of the habituated response in dishabituation, which is separate and distinct from spontaneous recovery, is argued to involve either the removal of habituation's effects, the development of sensitization or both [4].

One of the most apparent trends in recent psychology has been the attempt to redefine basic behavioral processes in terms of un-necessarily complex "cognitive processes"; as a result, habituation and dishabituation used to be considered "non-associative learning," since only one stimulus-event was involved but has been termed "implicit learning" by some writers [11].

What Are Some of the Properties of Habituation and Dishabituation?

The formal study of these processes goes back nearly a century being described by writers in the early twentieth century, with the basic properties being outlined in the 1930s and again in the 1960s and 1970s. Some nine basic features were formally outlined and have come to serve as a formal definition of habituation and its corollary process dishabituation [12]:

1. If a specific stimulus elicits a response, repeated presentations of that stimulus result in decreased response or habituation; the decrease is typically an orderly function of the number of stimulus presentations.
2. If the stimulus is subsequently withheld, the response showing habituation will tend to return or recover with the passage of time, termed spontaneous recovery.
3. If the habituation experience and subsequent opportunity for recovery are repeated in a series, then habituation will progress more rapidly.
4. With all other variables held constant, the higher the frequency of stimulation, the more rapid and pronounced is habituation.
5. With weaker stimulation, habituation will progress more rapidly and be more pronounced.
6. The effects of habituation training may progress below baseline measures of the response.
7. If habituation occurs to a specific stimulus, then habituation to similar stimuli via stimulus generalization also occurs.
8. Presentation of an irrelevant stimulus will result in the recovery of the habituated response, termed dishabituation.
9. With repeated presentation of the dishabituating stimulus of #8, the degree of resultant dishabituation is decreased or shows habituation itself.

A modified list of defining features was put forth with the following additional defining characteristics [7]:

1. The process of habituation will be disrupted by any unpredictable changes in the eliciting stimulus.
2. Habituation will occur more slowly to stimuli that are presented in a varying manner relative to stimuli presented in a constant, unchanging manner.
3. Spontaneous recovery may occur faster after more rapid rates of stimulus presentation relative to slower rates of stimulus presentation.
4. Spontaneous recovery may be incomplete recovery in that some habituation will persist over a long-time period.
5. Habituation will be observed for most if not all animal species; habituation occurs in response to most stimuli, including events without ingestive consequences such as lights and noises. The rate at which habituation will be observed will differ as a function of the species, the stimuli employed, the responses being measured as well as the individual subject.

As defining features, any behavioral stimulus–response contingency is said to display habituation if the response decrement shows these properties.

How Are Habituation and Dishabituation Studied with Human Infants and Children?

In general, studies of human infant habituation and dishabituation will employ variations of some basic themes [3]. In measuring the rate of a reflex such as the sucking reflex, researchers will measure the initial baseline rate of sucking to a pacifier equipped with transducers to measure muscle contractions applied to it. Then an auditory stimulus will be presented such as a human voice uttering a speech phoneme such as "pa." In response to a novel stimulus such as this, the rate of sucking will predictably increase but come to decline to baseline levels as "pa" is repeatedly presented, showing habituation. If the phoneme "ka" were to then be presented, the rate of sucking would again increase, demonstrating

dishabituation that the infant can discriminate between these two stimuli.

To measure more complex responses, slightly different procedures are used. When an intense or novel stimulus is presented, an orienting response is elicited and an infant (or any person) turns to look and fix their gaze at the source of a visual stimulus or turns their head towards the source of an auditory stimulus, as well as show changes in heart rate, EEG patterns and other autonomic responses. Initially, infants will show this orienting (or orientation) response to a stimulus but after repeated trials of stimulus presentations, infants will no longer respond to the stimulus, showing habituation of the orienting response. The subsequent presentation of an extraneous visual stimulus would predictably re-elicit the orienting response, again illustrating dishabituation [5]. Researchers in human development have used measures of the orienting response as assessment tools of complex human development, which will be described in the next section.

The Role of Habituation–Dishabituation in Human Development and Learning

Habituation–dishabituation procedures have increasingly been employed to assess the covert-behavioral abilities of preverbal infants to study the development of perception, remembering, and what is termed "information processing" as part of basic developmental research [5]. In addition, the performance of infants on habituation–dishabituation tasks has been shown to be a reliable and independent predictor of long-term development. Indices of the speed or efficiency with which infants show habituation and dishabituation have been shown to predict outcomes in behaviors such as language acquisition as well as more general behavioral outcomes such as verbal and non-verbal intelligence. Infants who show difficulty during habituation or habituation at slower than normal rates or a failure of dishabituation have been found to be at increased risk for a range of significant developmental delays. Populations of infants with Down syndrome, teratogen-exposed infants, malnourished infants and premature infants have been studied. Some researchers have found that at an age of 16 months, high-risk infants show rates of habituation comparable to newborn infants. Full-term infants have been shown to have more favorable measures of habituation indices than did preterm infants (birth weight $< 1{,}750$ g) at 5, 7 and 12 months. Despite its widespread use, some writers have argued that the precise psychometric parameters of habituation–dishabituation need to be established before any definitive and significant dialogue on the predictive value of habituation and dishabituation can be conducted. Some such studies have also been criticized for using highly artificial events as stimuli, such as an artificial voice box, instead of a stimulus with higher ecological validity, recordings of actual human utterances as auditory stimuli [1, 2].

In spite of cross-study comparisons being obfuscated by procedural differences as well as in the response being measured and that normally-developing infants show a range of individual variations in habituation, acceptable measures of test–retest reliability have been obtained for some measures of habituation and dishabituation. Unfortunately, few such data exist for populations of high-risk infants, among whom the pertinent data would be of greater interest [8].

Why and How Do These Behavioral Processes Occur?

The observation that habituation and dishabituation are so ubiquitous points to an obvious and basic adaptive-significance [3]. Constantly responding to meaningless stimuli would be taxing and wasteful to any organism; learning to not respond to biologically-irrelevant events while still responding to events that are biologically-significant-novel has clear survival value. The genome equips every organism with innate responses but natural selection has favored those individuals with flexibility in even the most "hard-wired" responses such as reflexes. Thus, the tendency to habituate to the familiar while still showing dishabituation to the unfamiliar has been selected for and is now a basic property of behavior [10].

As stated briefly above, dishabituation has been argued as involving either the removal of habituation's effects, the development of sensitization or both, depending upon the source consulted. For some stimulus–response contingencies that show habituation, the physiological mechanisms have been identified and while habituation has 9 (or 14) [7, 12] defining features, only one established physiological process has been elucidated for habituation. In studies of simple reflexes of invertebrates, such as a defensive-withdrawal reflex to tactile stimulation, the organism ceases to respond as the repeated stimulation causes a sensory neuron receptor to no longer release the necessary neurotransmitter to an effector motor neuron for the response to occur. The sensory neuron (presumably) will continue to release its neurotransmitter in response to a different stimulus as the basis for dishabituation; as a result, the reflex will still occur to a different stimulus but not to the stimulus to which habituation has occurred [3, 6]. That is, the observed change in responsiveness will be stimulus specific but show stimulus generalization to physically similar stimuli [12].

In terms of identifying the biological bases of habituation and dishabituation in vertebrates, less progress has been made but research so far points to similar neural events taking place in distinct lower brain areas depending upon the sensory modality of the stimulus and the nature of the response undergoing habituation and subsequent dishabituation. Little if any research has been conducted into the biological basis of habituation in humans but the infrahuman models of habituation are considered more or less applicable [3, 6].

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Dishonesty

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Synonyms

Corruption; Deception; Duplicity; Fraudulence; Lying; Untruthful

Definition

Dishonesty is an act without honesty; to cheat, lie or be deliberately deceptive; lacking in integrity; to be corrupt or treacherous.

Description

Dishonesty is usually viewed as a moral infraction and socially reviled behavior [2]. Yet is a behavior that we all engage in from time to time. Dishonesty such as lie-telling is a common feature of day-to-day social interactions [6]. Dishonesty incorporates a range of behaviors including lying, cheating, and other acts of deception. These can range from the innocuous (e.g., "white lies") to the very serious (e.g., fraud).

Overall, we generally perceive dishonesty as being bad and give negative evaluations of individuals who are dishonest [12]. Nevertheless, depending on the context perceptions of dishonesty fall along a continuum, while many dishonest acts are self-centered, carried out to protect oneself from harm or for personal gain, they also sometimes benefit others, such as telling a lie to be polite or trying to protect another from harm. While the former is considered socially and morally unacceptable, when the intention behind the act is prosocial in nature these acts are considered more socially acceptable. Our evaluations of dishonest behaviors are influenced by our judgments of the cost or harm to others and the intentions behind the behavior. For instance, cheating on test is judged harshly by society, while a lie to a colleague about their ugly outfit told to avoid hurting their feelings is judged less harshly. Thus, dishonest acts can be deemed antisocial in some situations, and occasionally prosocial in others.

However, it is when this behavior is chronic or of a serious nature that dishonesty becomes of particular concern. Indeed, the occasional dishonest act can be of material or psychological benefit to the individual if they are not caught. The costs associated with dishonesty generally come when one is unsuccessful in the deception, usually resulting from the hidden information or transgression being discovered, and these costs can be high. Besides the potential legal or professional consequences in some cases, there is also the social cost of losing credibility. That is, one whose opinion was valued and was frequently sought may no longer be consulted once it is revealed that the individual never offered an honest opinion. Similarly, one who lies frequently to get out of trouble may not be believed when denying later wrongdoing. Thus, lie-telling of any type can lose its strategic social advantages, once the lie teller loses credibility. Just as the story of the "Boy who cried Wolf" tells us, if one is often caught in a lie than eventually we are no longer believed and are considered

untrustworthy. Honesty is a cornerstone of our communication. This is one of the most fundamental conventions governing interpersonal communication – the Maxim of Quality [8]. This maxim states that one should be truthful and inform, not misinform, communicative partners. Telling a lie is a major violation of this cardinal rule of communication and getting caught in that lie could result in a loss of trust and a negative image of the liar. This could jeopardize social relationships, create an image of the liar as someone who lacks integrity or credibility, and lead to social isolation, thus further perpetuating an individual's anti-social behaviors.

Relevance to Childhood Development

Amongst children, dishonesty is also a frequent behavior. Studies with children have found similar ratings of honesty to those of adults. Children understand the importance of honesty although younger children tend toward moral absolutism, rating all dishonesty very negatively. But with age, older children and adolescents begin to gradually take into consideration the social context and the intention of the perpetrator when evaluating dishonesty [4, 9].

Developmental research specifically on children's dishonest verbal statements has found that children begin telling lies in the preschool years, with some lies appearing as early as 2 years of age. For instance, in one study 74% of children between 3 and 7 years of age lied about a transgression they had committed [15]. The earliest lies children tell are those that allow them to escape imminent punishment. Children will also be dishonest to obtain a reward. This may first be motivated by a desire for material benefits (e.g., stealing a cookie from a forbidden cookie jar), and later by a desire for social rewards (e.g., self-presentation lies).

Research has found children's lie-telling and their ability to tell a plausible, believable lie is related to children's abilities to understand the mental states of others and executive functioning [14, 16]. Lying requires the ability to instill a false belief in another and to tactically adapt one's communication to take into account the listener's beliefs and knowledge in order to tell a plausible lie. It also requires one to remember the content of the lie to maintain congruency in all subsequent statements as well as inhibit any behavioral response that may reveal the information being concealed. Thus, to be dishonest and to do it successfully (i.e., not to be caught) requires some degree of cognitive complexity. While preschoolers start to tell lies, their lies are easier to detect and they are less sophisticated in their ability to maintain their lies. For instance, a 4-year-old who has stolen a cookie from a cookie jar may fail to conceal the evidence of crumbs on their shirt or explain why the chair has been moved up to the counter. However, as children increase in age, they become more adept at maintaining their lies and giving plausible explanations. As in the previous example, an 8-year-old may try to conceal the evidence such as wiping away the crumbs and putting the chair back or if caught try to give a plausible story such as they were moving the chair to reach the sink in order to wash their hands. Thus, the initial emergence of dishonest behavior like lying may related to children's growing cognitive sophistication.

Children's dishonest behaviors may change over time. While preschool children's dishonest behaviors may be related to negotiation of game rules and play, property rights of toys, and concealment of transgressions such as rule violations, as children become older their dishonesty can include behaviors for personal gain such as cheating on a test or assignments. Estimates of academic dishonesty suggest that as many as 50–70% of students engage in academic dishonesty at least once. However, the prevalence of dishonesty in academic setting increases with age as the benefits of dishonesty and pressures to succeed increase. Academic dishonesty is of greatest concern in high school and post-secondary where it is most prevalent. While only a small percentage of children cheat in the elementary school, this increases to as much as 70% in high school. Children's motivation may be affected by whether they expect negative consequences for being dishonest versus positive consequences for being honest. According to Bandura's social cognitive theory of moral action, children go through a process of socialization as they begin to internalize moral standards held by their parents and society [1]. Younger children will be most affected by external physical factors (i.e., punishments), older children who have not yet internalized the moral standards will be most affected by external social factors (pleasing another person), and finally older children and adolescents who have internalized the moral standards will be most affected by internal social factors (pleasing oneself by doing the "right" thing).

While the average individual engages in occasional dishonest behaviors (e.g., "white lies") from time to time, some acts of dishonesty fall within the realm of criminal behavior. Such malingering can lead to involvement with the law and can be associated with antisocial behavior. For instance, lying has been found to be related to truancy, aggression, and delinquency [7]. When ranking children's problem behaviors in terms of seriousness, teachers, clinicians, and parents place dishonesty at the top of their lists [13]. Frequent dishonesty may be a secondary behavior used to cover up other antisocial acts. Children who exhibit behaviors such as delinquency

and aggression often focus on short term benefits and immediate gratification which may lead these children to be more likely to commit transgressions which they later attempt to conceal through deception.

Socialization factors may affect whether children will engage in more or less dishonest behaviors. Dishonesty is generally regarded as a negative behavior and is discouraged in children. For this reason, parents directly socialize children about the inappropriateness of such behaviors. For instance, paternal warmth and authoritarian parenting may increase honesty [3]. It has also been suggested that exposure to a harsh disciplinary style, maternal rejection or parental stress may be related to the development of deception [5]. Besides parenting influence, children may also be influenced by their peers and the social consequences of being perceived as dishonest. Peer pressure may influence some children to engage in dishonest acts as they try to follow the norms of their peer group [11]. In fact, one the most influential factors in a child's decision to cheat is the perception of peers' academic honesty [10]. However, peers may also encourage children to be honest. Thus, a child who frequently lies and is perceived as being dishonest may suffer grave consequences in their social relations and their perceived trustworthiness. For instance, children's trustworthiness has been found to be related to their school adjustment and to the number of friends they have. Similarly, a child who believes that their peers disapprove of cheating is less likely to cheat.

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Disinhibition

►Impulsivity

Disintegrative Psychosis

►Childhood Psychosis

Disorder of Written Expression

►Dysgraphia

Disorganized/Disoriented Attachment

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Synonyms

Attachment disorder; Insecure attachment; Reactive attachment disorder

Definition

Disorganized/Disoriented attachment is characterized in Ainsworth's "strange situation" task as a child who exhibits behavioral disorganization or disorientation in the form of wandering, confused expressions, freezing, undirected movements, or contradictory (i.e. "unorganized") patterns of interaction with a caregiver. Most of these children have histories of maltreatment and may exhibit fear of the caregiver.

Description

In Mary Ainsworth's original work on attachment classifications [1] three categories of infant–parent attachment were elucidated. The majority of children were securely attached and showed appropriate distress upon separation from mother, willingness to explore in mother's presence, and fear of strangers. Mothers of securely attached infants can readily soothe a distressed child and children feel comfortable exploring new environments while in their mothers' presence. The other two categories represented insecure relationships, with appeared to be avoidant in nature, or ambivalent, alternating between approach and avoidance during laboratory observations of the "strange situation" (a series of manipulated separations and reunions).

Mary Main and Judith Solomon [2] noticed that a fourth category could be reliably coded during strange situation procedures. They noted that a small minority of children (about 5%) could not be placed into the original three attachment categories and often appeared to dissociate or show stereotyped movements in the presence of the caregiver. Many of these children appeared afraid of the mother, wandered away from her, showed variable affect, often avoiding the mother and then approaching her with intense desire for interaction. These children show no "organized" pattern of relationship with their caregiver and often appear disoriented during laboratory observations. While any type of family can develop a disorganized/disoriented attachment style, most work finds that parents of disorganized children are abusive or neglectful, and exhibit frightening or unpredictable behavior toward their infants. Moreover, these parents often have histories of past trauma and unresolved attachment problems in their own childhoods [3].

Because insecure attachments are related to poor child outcomes including emotional, cognitive, and behavioral dysfunctions, recent research is attempting to prevent attachment problems through parent education and training programs [4] and through brief interventions such as video feedback sessions in the home [5]. These methods are felt to be effective because attachment problems are related to parents' lack of understanding of child development, little warmth or responsiveness to infants' needs, as well as parental stress and psychopathology [6].

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Disposal

▶Purging

Disposition

▶Mood

Disruptive Behavior Disorder

▶Oppositional Defiant Disorder

Dissocial Personality Disorder

▶Sociopathy

Distractibility

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Synonyms

Inattention; Inattentiveness; Susceptibility to interference

Definition

Distractibility refers to inability, or difficulty, in maintaining attention and resisting interfering stimuli. Developmental differences are notable: older children generally are less distractible than younger children [5]. Distractibility also affects adolescents and adults, occasionally resulting in dangerous behaviors (e.g., while driving and conversing on a cell phone). Extreme distractibility that impairs one's level of functioning in the school or home environment has been characterized as a hallmark of the childhood behavioral disorder known as attention-deficit/hyperactivity disorder (ADHD). A variety of assessment techniques have been employed to measure susceptibility to distraction.

Description

Attention is vital for day-to-day functioning at all points in the human lifespan. Vision is not well-developed at birth. Infants' vision is typically out of focus and movements, patterns, and colors in their field of view are very distracting. However, infants soon gain greater control over their ability to direct and sustain attention. Although distractibility remains high throughout the early years, the ability to direct and control attention helps infants form social bonds with caregivers and to acquire language.

Distractibility decreases as children grow older but remains part of normal human cognition into adulthood. The natural limitations of human performance guarantee distracting stimuli will have some negative effect [2, 11]. We cannot always maintain complete control over our ability to prioritize and allocate cognitive resources [6]. In some circumstances, distractibility can result in increased risk for injury. For example, a young child is distracted by the sheer volume of visual information at a pedestrian crosswalk, an adolescent is easily distracted by passengers in their vehicle, and an airline pilot can easily become overwhelmed by the number of stimuli demanding attention in the cockpit.

Most theorists believe susceptibility to distraction varies along a continuum. All individuals may be susceptible to some level of distraction depending on the context and the attentional capacity available to complete a certain task (e.g., [4]). Those who are more frequently distracted may have greater difficulty ignoring irrelevant information coming from both internal and environmental sources. Extreme distractibility is characteristic of ADHD. Children with ADHD often are easily distracted from schoolwork or play, often daydream, and have difficulty paying attention across different settings such as in a classroom as well as at home.

The development of behavioral inhibition also plays a role in distractibility. Young children are still developing the ability to control impulses and urges and therefore exhibit more interference from distracting items. With the development of inhibitory mechanisms needed to resist interference from distracting stimuli, people are less susceptible to distraction. A very young child is more likely to be "captured by" distracting stimuli while an older child may be "directed toward" something distracting [8]. Inhibitory control processes may be important for maintaining attention longer and being effective at resisting distraction [6]. Inhibitory ability tends to sharpen across development [10] and a parallel pattern of development generally exists for susceptibility to distraction. That is, younger children tend to be more distractible than older children [5].

Assessment of one's susceptibility to distraction has been traditionally examined by cognitive-perceptual tasks (e.g., Stroop task, dichotic listening task). Distractibility results in longer response times or more errors. In applied cognitive models, distraction in various forms (e.g., other peers, cell phones) is assessed by limits to human performance in a number of settings such as road-crossing [1, 9] and driving [7] where distracted children may make riskier crossing or driving decisions. On the other hand, distraction techniques have been used for children in a positive manner such as for pain and anxiety management for medical procedures [3]. For example, when preparing for an injection, parents may relieve a child's anxiety by talking to them or distracting them with a toy.

In sum, distractibility is an important component of human functioning that may have associated positive or negative consequences.

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Distress

►Bereavement

Disturbed Dreaming

►Nightmares

Divergent Thinking

►Creativity

Divergent Thinking Task

►Creativity Assessment

Diversity

►Multicultural Education

Diversive Exploration

►Active Exploration

Divorce

►Divorce-Stress-Adjustment Perspective

Divorce-Stress-Adjustment Perspective

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Synonyms

Divorce; Family dissolution; Separation

Definition

The stress-adjustment perspective of divorce is a theory that describes divorce as a process that includes the full spectrum of events that precede and follow a divorce. It considers the multitude of stressors that are associated with the parental divorce process, and it suggests that these stressors leave children at increased risk for various problems before and after the divorce [4].

Description

Even before divorce occurs, there seems to be a substantial difference in the lives of children whose parents will eventually divorce when compared to children whose families remain intact [3]. These differences, rather than the actual divorce, are likely a source of childhood difficulties which may render negative consequences in later life. As parents proceed along the path toward divorce, their ability to

provide for their children is diminished. Parents' ability to invest time, effort and resources into parenting becomes compromised, often having a detrimental effect on the children [3].

The stress-adjustment perspective of divorce postulates that parental divorce is a continuous process which begins while a couple is still living together and ends long after the legal dissolution of a marriage [1]. Throughout the course of a divorce, there are several stressful events that occur which require children to continually adjust [4].With these stressors comes the additional risk that children will become negatively impacted by the divorce, either emotionally, behaviorally or physically [1]. While the process typically takes an unsettling toll on all family members, there are several key factors that influence an individual's successful adjustment to divorce [1]. Children of divorce who are thought to have successfully overcome the turmoil of their parents' former marriage, are those persons who have been able to adapt and function within a new family, as well as those who have been able to perform well in school and work roles [4].

For each child, the peak emotional impact of the parental divorce will occur at a different time. Older children, in particular, may experience a great deal of stress prior to the actual divorce, as this is the point in which he or she witnessed greatest amount of disagreement and unhappiness between his or her parents. In contrast, for a younger child, the departure of one parent from the home may be the ultimate anxiety-provoking experience, as he or she may have been unaware of the difficulties which were taking place in the home [1]. Since each individual experiences stress and adjustment in different ways, it is likely that the parental divorce will impact each child in a unique manner.

During the time in which a marriage is dissolving or immediately afterward, a number of events or mediators have the potential to influence emotions, behavior, and health. Protective factors, or moderators, help to assuage the relationship between divorce-related events and the way in which the individual experiences the associated stress [1]. In particular, resiliency factors such as coping skills, social support, and community services help to alleviate the negative impacts associated with divorce. These factors are thought to reside not only within the individual, but in interpersonal relationships, structural roles (e.g., employment, community services, and supportive government policies), and settings as well [1]. As such, the way in which an individual is able to utilize his or her coping skills, social support network, and support within the community, plays an influential role on the impact of the divorce [4].

Relevance to Childhood Development

Divorce is a confusing and complicated event for children. Not only is their primary support system disrupted, but they also face the possibility of losing their home, their school and even their friends [2]. Furthermore, divorce can lead to less effective parenting, a decrease in involvement with the noncustodial parent and a decline in economic resources. Moreover, children are frequently confronted with intense feelings of insecurity and abandonment. A multitude of unanswerable questions are posed as the stability of the family changes. Many of these difficult questions yield complex emotions, such as guilt and self-blame [2]. With divorce being seen as an ongoing process rather than an isolated, distinct incident, it is important to look beyond the legal dissolution of the marriage and focus on the conditions that children were exposed to prior to and following the official termination of the marriage. Since children who have experienced the parental divorce process tend to exhibit more difficulties in maintaining resiliency both prior to and subsequent to the divorce, it is essential that this information be considered in order to fully understand the long-term ramifications of divorce on children [4]. Last, the divorce-stress-adjustment perspective postulates that for the majority of individuals, the termination of a marriage is a stressful event regardless of whether or not tension occurred prior to the legal dissolution of the marriage, was short-lived or was accompanied by positive outcomes [1].

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Dizygotic (DZ) Twins

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Synonyms

Double-egg twins; Fraternal twins; Non-identical twins

Definition

Twins that result from the individual fertilization of two different eggs.

Description

During her menstrual cycle, a woman typically releases one egg, or ovum, at ovulation. Dizygotic, or fraternal, twins result when a woman releases two eggs within a 24 h period (termed multiple ovulation), which are fertilized by two separate sperm. Because of the 24 h window, it is possible for two eggs to be fertilized by sperm from two separate fathers. Each fertilized egg is called a zygote, and the term dizygotic means "two zygotes." Each zygote develops its own placenta, chorion, and amnion, the support system to feed and protect the fetus during gestation. Dizygotic twins may be the same sex or opposite sex, and share the same number of genes as any two siblings.

Monozygotic twins result when one zygote splits into two genetically identical individuals. Monozygotic twins are thought to occur randomly throughout the human population. In contrast, the tendency to release more than one egg is believed to be partially inherited. Follicle stimulating hormone (FSH) facilitates the ripening and release of eggs housed in the ovaries. Women who are biologically wired to manufacture elevated levels of FSH are more likely to have fraternal twins. Similarly, older, premenopausal women are also more likely to have fraternal twins, as FSH levels rise with age. Because of the strong association between fraternal twins and FSH levels, the mother is a more influential than the father in determining whether the couple will produce fraternal twins.

Fraternal twinning is probably a multi-causal event, and many additional factors have been linked to this outcome. For example, fraternal twins are conceived in higher numbers following a period of sexual abstinence, such as soldiers returning from war. Fraternal twins also are more common in partners who have intercourse very frequently, as intercourse may stimulate the hormones associated with egg release. A low sperm count can decrease the incidence of dizygotic twins. Ethnic background influences twinning as well. Among Caucasians, about one third of twins are monozygotic, while the remaining two thirds are dizygotic. The percentages for dizygotic twins are higher in African populations, and lower in Asian populations.

Outside of fertility treatments, twins occur in about one out of every 80 to 90 births. The incidence of dizygotic twinning is on the rise in today's western society, with the increased use of technology to treat infertility. An infertile woman may be given drugs to encourage ovulation (e.g., Clomid, Pergonal), sometimes resulting in the release of multiple eggs. In other common procedures, eggs are fertilized in the laboratory and then multiple zygotes or gametes are transferred into the woman's body for gestation. For example, in Gamete Intrafallopian Transfer (GIFT), eggs and sperm are joined in a petri dish and then injected into the fallopian tubes. In Zygote Intrafallopian Transfer (ZIFT) newly fertilized eggs are transferred to the fallopian tubes. Procedures such as these usually result in multiple births.

A woman does not necessarily give birth to twins with every multiple ovulation cycle. Although more than one egg is released, only one egg may be fertilized by a sperm, resulting in a single birth. In addition, sometimes twins experience "vanishing twin syndrome," where one twin is spontaneously reabsorbed by the mother's body during the first trimester. This event happens so early in development that the mother may not even be aware that she was carrying twins.

Gestating twins is a greater challenge than carrying a single fetus to term. Mothers of multiples are more likely to experience complications during pregnancy, such as gestational diabetes or pre-eclampsia. Pregnancy also is challenging for the developing twins. One twin may benefit from better blood flow (bringing oxygen, nutrients, and antibodies) due to its position in the womb, while the other twin sustains a deficit. Twins are more likely to be miscarried, be stillborn, be born prematurely, require interventions during labor, and be low birth weight. Twins are typically born about 4 weeks earlier than singletons. Although the risks are higher than average for twins, most twins are healthy and suffer no long-term consequences of their unusual gestation.

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Dominance

►Cerebral Function (Lateralization)

Dopamine

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Definition

Dopamine is a neurotransmitter that originates from the substantia nigra and adjacent tegmental areas of the midbrain [2] and is predominately important in controlling voluntary motor behavior.

Description

Dopamine is a neurotransmitter within brain that plays a vital role in the modulation of motor behavior [4]. While dopaminergic projections originate in the substantia nigra and adjacent tegmental areas of the midbrain [2], the nigrostriatal, mesolimbic, and mesocortical tracts serve to supply Dopamine throughout a number of cortical and subcortical regions of the brain [3]. The scope of these projections are best exemplified by the breadth of functional domains which Dopamine impacts. For example, while Dopamine is primarily linked with the regulation of voluntary motor behavior it has also been linked to working memory, forming complex associations, mood and psychological regulation as well as attention [6]. In addition to its' ties with voluntary movement disorders, Dopamine alterations have been associated with several neuropsychiatric syndromes as well [5].

Decreased levels of Dopamine have been associated with impairments in voluntary movements such as excessive rigidity, tremor, and bradykinesia (i.e., slowed movement). Parkinson's disease is a presentation many are generally familiar which is related to decreased dopamine production and utilization, thus leading to a constellation of symptoms that include those manifestations previously noted. In comparison, excessive amounts of Dopamine have been linked with neuropsychiatric presentations such as Schizophrenia, ADHD, and Tourette's [5]. The link between excessive Dopamine and Schizophrenia is so prominent that many of the antipsychotic agents utilized to treat this manifestation serve to decrease Dopamine levels within the system [1].

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Double Blind Design

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Definition

The double-blind design describes an experimental procedure in which neither the participant nor the experimenter are aware of which group (i.e., experimental or control) each participant belongs to. The key that indicates in which group each participant belongs to is kept by a third individual and not given to the experimenter until the study is over.

Description

A Double-blind design designates a rigorous way of carrying out an experiment in an attempt to minimize subjective biases on the part of the experimenter and on the part of the participant [2–7]. A Double-blind design is most commonly utilized in medical studies that investigate the effectiveness of drugs. Participants are randomly assigned to the control or experimental group and given random numbers by a third party, who encodes the drugs with matching random numbers. The investigational drug is administered to the experimental group and the placebo substance (the word placebo derives from a Latin word meaning "I shall please" is administered to the control group). The placebo has an identical appearance (i.e., color, taste, etc.) with the actual drug. Both the participants as well as the experimenter are blind to who receives which treatment, until the study is completed and the random code is broken.

Double-blinded procedures are considered to minimize inadvertent biases such as placebo effect, experimenter expectancy effect and experimenter bias and in effect produce higher standards of scientific rigor. The *placebo effect* describes the process in which the participants preconceptions that the treatment would be effective

rather than the treatment itself results in significant treatment outcomes [3]. The effectiveness of the placebo in the treatment of several conditions is well documented in the empirical literature. Numerous reports have documented appealing evidence of significant treatment gains for individuals that received the placebo rather than the treatment drug; but the specific mechanism (or mechanisms) involved in the placebo effect are yet to be determined. Current research shifts the attention to the question of how the brain responds to placebo in order to delineate the mechanism/s in operation.

The *experimenter-expectancy* is a phenomenon similar to the placebo effect but it derives from the experimenter rather than the participants [1–3]. The experimenter may inadvertently communicate expectations to the participants resulting in the influence of the participants responses in a way that gives biased results. For instance the experimenter investigates the effect of a mneumonic technique on students learning performance. The researcher believes that students with higher grades will have a better performance. With verbal and non verbal cues the researcher may unconsciously trains students with higher grades in a more intense way. Consequently, the experimenter expectancy is substantially implicated in the outcome rather that the manipulation of the independent variable, placing a substantial threat over internal validity (i.e., the soundness in inferring that the change in the dependent variable is produced by the manipulation of the independent variable).

In more general terms the experimenter is and remains human. Human nature is by definition unable to remain completely objective. Consequently, *experimenter biases* are plausible in any phase of research including the idea-generating phase, the problem-definition phase, the procedures-design phase, the observation phase, the data-analysis phase, the interpretation phase, and the communication phase [4]. Double-blind designs are often generated in the attempt to combat these biases to the degree most possible.

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Double-Egg Twins

▶Dizygotic (DZ) Twins

Down Syndrome

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Synonyms

Down's syndrome

Definition

A genetic, chromosomal disorder and common cause of mental retardation. Although it is a cause of mental retardation, Down Syndrome is considered a medical condition.

Description

Down Syndrome is a common genetic disorder occurring in children. Estimated rates are about one in 600 children. Down Syndrome is also a very common cause of mental retardation, as Down Syndrome accounts for about one-third of all children diagnosed with mental retardation. Additionally, Down Syndrome may lead to other cognitive or physical deficits that can cause further hardships for the individual, as well as family members.

Down Syndrome can be diagnosed based on the presence of physical, bodily abnormality (such as in the face and hands) and through the use of genetic testing. Physical characteristics of Down Syndrome include small head, enlarged tongue, slanted eyes, and flattened nose. The cause of Down Syndrome stems from the presence of an extra Chromosome 21. The risk of Down Syndrome increases as the mother's age increases.

Notable effects of Down Syndrome include impaired speech, understanding, and memory. Individuals with Down Syndrome may have learning difficulties in addition

to poor social skills. However, through psycho-social interventions, individuals with Down Syndrome can adapt and learn new behaviors.

Relevance to Childhood Development

Children with Down Syndrome will appear physically different than their peers. In addition, children with Down Syndrome may have difficulty in school as well as in peer groups or social situations.

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Down's Syndrome

►Down Syndrome

Downers

►Depressants

Dramatic Play

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Synonyms

Creative dramatics; Fantasy play; Pretend play; Pretension play; Socio-dramatic play; Symbolic play

Definition

Dramatic play permits children to fit the reality of the world into their own interests and knowledge. Dramatic play gives the child the opportunity to release his/her emotions while feeling less threatened and exposed owing to the distance that dramatic play creates from his/her problems [1, 3].

Description

Dramatic play includes role-playing, puppetry, and fantasy play. It does not require interaction with another. By acting out experience, he/she comes into contact with reality. It is constructive for the child to remember situations through play and to have the opportunity to repeat them and work through them. Socio-dramatic play is dramatic play with the additional component of social interaction with either a peer or teacher [1]. Creative dramatics involves spontaneous, creative play. Children frequently reenact a scene or a story.

Relevance to Childhood Development

One of the purest forms of symbolic thought available to young children, dramatic play contributes strongly to the intellectual development of children [1]. Symbolic play is a necessary part of a child's language development [1]. Creative dramatic play is structured and incorporates the problem solving skills of planning and evaluation. Planning and evaluating occurs in creative dramatics [1]. Porter [2] and Dunne [2] regard dramatic play as a form of play that offers the child client the opportunity to grow by acting out situations and dramatizing in a safe, non-threatening environment. Krüger [2] uses pretension play and symbolic play as terms interchangeable with dramatic play. To use this form of play effectively, the therapist should have a clear picture of the child client's situation. A great deal of inventiveness is also required of the therapist. Dramatic play is especially suitable for use in the change-oriented phase of helping as it focuses on problem solving. This process may lead to emotional growth, development and mastering, for instance, when the child acts out the first visit to a parent after divorce. New or specific roles can be learned when exercising these through dramatic play. While the child is playing, the therapist has the opportunity of evaluating current role behavior. This is followed by helping the child to practice new possibilities. The therapist may even model new roles. Dramatic play creates a special means of communication between therapist and child client. Important information can come to the forefront, for instance, while playing with a doll's house. During dramatic play, the child can manage his/her world as he/she likes. By playing through situations over and over again, insight

into certain aspects of his/her situation may develop. Often, the child's questions are answered during dramatic play. A tape recorder can be used in conjunction with dramatic play. While listening to his/her own play, the child may develop insight. Porter [2] claims that aids and apparatus are not so important for this type of play. They can be used, though, to make interviews interesting and full of fun. Therapeutic aids must be chosen according to each child's stage of development, age, motivation for therapy and intellectual ability. For example, Van der Merwe [4] has found that dramatic play was the ideal form of play for some of the respondents in research that she conducted on children of divorced parents. One child dramatized almost all the time. She was creative and had a good imagination. Her mother planned to remarry and the respondent would then go to boarding school. She acted this situation out with dolls. She also made a book containing all the pictures that she had drawn of the stories that she made up. Other respondents did not respond as well to this play form. They never progressed further than tidying up the doll's house. This again stresses the importance of individualization when determining the forms of play to use in an intervention plan. Van der Merwe [4] also established that children generally personalize the dolls quickly by talking to and about them as, for instance, mom and dad. It was also a common occurrence for children to talk softly while they played with the dolls, therefore making it easy for the researcher to keep track of their playing. Some children talk to the dolls in a kind of a teacher/instructor manner [4].

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Draw-a-Man DAP

►Draw-A-Person Test

Draw-A-Person Test

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Synonyms

Draw-a-man DAP; Goodenough/Harris drawing test; Human figure drawing; House-tree-person (H-T-P)

Definition

The Draw-A-Person test is a projective drawing task that is often utilized in psychological assessments of children. Although there are a number of variations, an individual is typically asked to draw a picture of a person. Results are analyzed to develop hypotheses about the subject's cognitive, developmental, and emotional functioning, as well as personality style.

Description

Draw-A-Person tests have been used in assessment since Goodenough created the Draw-A-Man Test in 1926 [3] to estimate cognitive development. In 1949 [7], Draw-A-Person was the first instrument to use a drawing technique as a means of interpreting personality based on the projective hypothesis [4]. Since that early beginning, a number of approaches have been used, including drawing a person of the same sex, drawing a person of the opposite sex, drawing a person doing something (kinetic), or telling a story about the drawing. Draw-A-Person tests are typically easy to administer and quick to complete. There are two major approaches to interpreting Draw-A-Person tests. The first (originating with [7]) involves drawing inferences from isolated features of the drawing such as the eyes or hands. In this approach, aspects of a drawing are believed to indicate suspiciousness, preoccupation with sex, etc. [7]. A more global approach is recommended by Koppitz [3], who developed a scoring system for children's drawings; thirty separate indicators could be summed for a total score indicating degree of maladjustment [5, 6].

The *Draw a Person Test: Screening Procedure for Emotional Disturbance* (DAP: SPED) created by Naglieri et al. in 1991 [6], is one of the few Draw-A-Person tests to provide normative data and is considered psychometrically advanced when compared to other figure drawing techniques [1]. The DAP: SPED can be used for a number of screening purposes, including identifying individuals

who may need further psychoeducational evaluations and identifying students who may need individual or group counseling [1]. The authors of the DAP: SPED recommend that administrators have previous experience in test theory and in administration of individual and group assessment procedures. In the DAP: SPED, participants are asked to draw three separate figures, a man, a woman, and self. Each figure is scored using scoring templates and a total score is derived from the individual drawing scores. Discriminate validity was examined by the authors of the test and found that the DAP: SPED significantly discriminated between students placed in a special education setting and a controlled matched "well adjusted" students from the standardization sample. The authors also provided internal consistency and standard errors of measurement for each age group [1].

Currently, the DAP is rated the fifth most frequently used technique by psychologists with children and adolescents, while the HTP ranks fifth. In school settings, projective drawing techniques rank highest in use by school psychologists [9].

Criticisms of the DAP and other projective drawings center on the lack of psychometric properties for these procedures (despite extensive research) and the lack of consistent measures of reliability and validity.

Despite its wide spread appeal, a problem with Draw-A-Person techniques (as with other projective techniques) is the absence or paucity of reliability and validity. Analyses have shown interrater and test-retest reliabilities to be variable across studies while validity has been shown to be negligible [6]. The latter is especially true with regard to the Machover approach of looking for signs in drawing details. The more global approach to scoring (i.e., Koppitz and Naglieri) has been found in some studies to differentiate between children with maladjustment and those without.

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Dream Sleep

►Rapid Eye Movement Sleep

Dream State

►Rapid Eye Movement Sleep

Drinking

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Synonyms

Ingestion; Intoxication; Oral consumption; Under the influence

Definition

Drinking refers to the ingestion of a liquid substance through oral consumption. Colloquially, it refers to the specific practice of consuming alcoholic beverages.

Description

Alcohol consumption is a common social phenomena in many countries and cultures around the world. Different cultures view alcohol consumption with varying degrees of acceptability, and many countries regulate the sale and consumption of alcoholic beverages due to the intoxicating effects of the psychoactive drug ethanol, which is the primary ingredient in the beverage. The strength of an alcoholic beverage is a measure of the ratio of ethanol to total volume of the beverage, a calculation referred to as alcohol by volume or ABV. In the United States, the strength of the beverage is commonly indicated by its "proof" which is a number equal to twice the ABV percentage (when measured at 15°C). For example, a distilled spirit (such as the beverage "vodka") might be measured as containing 40% ethanol by volume, and would be labeled as 80-proof.

Because the ABV ratio can vary greatly depending on the type of alcoholic beverage, drinks are commonly served in standard sizes such that each serving is approximately equal to one "standard drink." In the United States, a single standard serving of an alcoholic beverage contains 17.7 ml of pure ethanol (approximately 14 grams or 0.6 fluid ounces). This roughly corresponds to one 5 oz serving of wine, one 12 oz serving of regular beer, or one 1.5 oz serving of 80-proof liquor. Once ingested, the alcohol quickly enters the bloodstream and is distributed throughout the body.

The ratio of ethanol in a person's blood stream is referred to as blood alcohol concentration or BAC. A person's measured BAC depends on a number of factors including the amount of alcohol consumed (and over what duration of time), the amount of food in the stomach at the time of consumption, the metabolic system of the individual, her/his body size, and others. Typically, a single standard drink of alcohol will quickly raise a person's BAC by 0.02–0.05%. Because ethanol is eliminated from the blood at a rate of 0.015–0.06% per hour, alcohol can typically be eliminated from the body at a rate of approximately one standard drink per hour. However, one potential area for concern with respect to drinking is that many individuals are unaware of the types and quantities of alcohol that make-up a single standard drink, causing them to over-pour and underestimate the actual amount of alcohol they may have consumed [5].

Prevalence

U.S. Epidemiological data from 1990 to present have consistently shown that more than two out of every five high school students surveyed had consumed alcohol during the previous 30 days; with a steady increase observed from the ninth grade year (approximately one third of students reporting drinking) through the 12th grade year (with over half of all students reporting drinking). Average age of first alcohol use for U.S. adolescents ages 12–20 is approximately 14 years, with little variation across demographics of sex, race, or geographic region. The same sample reported drinking an average of six of the last 30 days and consuming approximately five alcoholic beverages per drinking occasion. Further, approximately 20% reported binge drinking (consuming five or more drinks during a single two-hour period) on at least one occasion during this same 30-day period. Nearly 30% reported riding in a vehicle with someone who was under the influence of alcohol during this period, and almost 10% indicated they had driven a vehicle while under the influence of alcohol at least once during the last 12 months [3].

Similar high usage of alcohol by adolescence has been found in numerous other countries as well. The European School Survey Project on Alcohol and other Drugs (ESPAD) has collected data on adolescent drug use in 35 European countries. This study sampled students approximately 15 years of age from schools throughout Europe. Findings varied significantly across countries, with proportions from 20% to over 80% of students reporting alcohol consumption during the previous 30 days. Additionally, approximately 8–60% of students reported being drunk during the previous 30 days; 15–60% reported binge drinking during this period; and 5 to nearly 40% of students reporting that they had been drunk at least once prior to the age of 13 years. When comparing these data to those obtained from comparable studies in the U.S. Turkey exhibited consistently lower prevalence rates of alcohol consumption than the U.S. whereas each of the other 34 countries typically (on most though not all variables) exhibited higher prevalence's of adolescent alcohol use than the U.S. [1].

Consequences

The consequences of alcohol use during childhood and adolescence are many. Individuals ages 12–20 consume alcohol in higher quantities per drinking occasion than do individuals 21 years and older, often resulting in increased risks associated with the drinking. Further, young adults ages 18–20 have the highest prevalence rates of alcohol use disorders compared to all other age groups. With more than half of adolescents in the U.S. having reported drinking in the past month (and in many cases even higher percentages of teens engaging in drinking internationally), the U.S. Surgeon General in 2007 issued a Call to Action to Prevent and Reduce Underage Drinking [7]. The report documents that alcohol is the substance of choice for children and adolescents; being used at rates higher than cigarettes, marijuana, or illicit drugs and making it the most-widely used substance for this age group.

The report further documents some of the many adverse consequences associated with underage drinking, among which includes more than 5,000 alcohol-related deaths for individuals under the age of 21 annually, making it the leading cause of injury-related deaths for this age group. Alcohol use in this age group is also associated with increased use of tobacco and illicit drugs; academic, social, familial, and health problems; increased risk of being involved in physical and/or sexual assaults; and increased risk of homicide or suicide. Because adolescence is also a critical period for physical development, alcohol use during this time has also been correlated with significant

physiological consequences including decreased levels of growth and sex hormones; lower bone mineral density; elevated levels of liver enzymes associated with liver disease, and abnormalities in both the hippocampus and corpus callosum of the brain. Alterations in the structures and functions of the brain and other vital organs during this period of development are believed to result in consequences that extend significantly beyond adolescence as well [2].

Risk Factors

A number of risk and protective factors have been identified in the development of alcohol use problems among children and adolescence. While it should be noted that these factors are correlational rather than causal, their association with alcohol use has been well established in the scientific literature. Perhaps most notable among the risk factors identified is that children of alcoholic parents are 4–10 times more likely to develop alcohol dependence themselves. Certainly family influence plays a significant role in shaping children's perceptions about alcohol. Children who are raised in homes where parents consume alcohol and hold positive views concerning alcohol are also more likely to consume alcohol at an early age themselves. Conversely, children whose parents are supportive, involved, and attentive toward their activities are less likely to engage in drinking behaviors during childhood and adolescence.

As individuals develop from childhood into adolescence, familial influence (particularly that of the parents) tends to decline and is often replaced by other influences, most notably that of their peers. The extent to which an individual's peers drink, or hold positive views related to drinking is strongly associated with that individual's decision to drink her/himself. Adolescents' expectations play a significant role in their decisions to drink or not, how soon they will begin drinking, and how much they will consume when drinking. Those who hold positive expectancies related to the perceived consequences of drinking (seeing the consequences as more beneficial than harmful) are more likely to begin drinking at a younger age and in higher quantities than those who do not. Studies have demonstrated a consistent trend whereby children's expectancies regarding alcohol tend to shift between ages 9 and 13 from negatively held beliefs to positive ones, suggesting social phenomena may play a contributing factor to shaping these beliefs. Youth also are more likely than adults to be exposed to media that promotes drinking behaviors, including television, radio, and internet advertising, which is more ubiquitous among programs that market to young people.

Other risk factors include a number of variables related to the individual. Certain personality and behavioral traits in particular show strong associations with increased adolescent drinking. Specifically, increases in behavioral disinhibition and externalizing behaviors (oppositional and conduct related problems) also are associated with alcohol use disorders. Self-regulation processes may be one of the key elements underlying these issues, as these processes have been shown to be at a critical developmental period during adolescences when the frontal lobes of the brain mature. It is during this period that many adolescence increase their risk-taking behaviors, which may be related to increases in alcohol consumption.

The presence of one or more other comorbid psychological disorders is also a strong indicator. Those disorders that show the highest concordance with alcohol and/or substance abuse in adolescence include Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), Antisocial Personality Disorder, and other substance use disorders. Further, there is some evidence to suggest that individuals with some internalizing disorders including depression and anxiety may be at an elevated risk of using alcohol, likely as a mechanism for coping with their distress. Perhaps, the single best predictor of alcohol use problems, however, is age of first alcohol consumption. Adolescents who report drinking prior to the age of 15 are at least four times more likely to meet criteria for alcohol dependence at some point during their lives than individuals who abstained from alcohol consumption until after the age of 21 [2].

Assessment and Intervention

According to the 2002 National Survey on Drug Use and Health, an estimated 1.4 million adolescents ages 12–17 met diagnostic criteria for alcohol use disorders. The same survey found that only 227,000 (about 16%) of those individuals received any services for their alcohol-related problems [4]. Among the many challenges in intervening with adolescent alcohol use is that a vast majority of research related to alcohol assessment and intervention has been conducted on adult populations, and may not generalize to adolescents who differ developmentally. Similarly, the diagnostic criteria also reflect adult pathology and may not fully capture adolescent symptomatology, further suggesting that the prevalence figures identified above likely reflect low estimates of actual problems.

Intervention for adolescent drinking takes various forms including prevention efforts, individual and family based interventions, and systemic interventions. Studies regarding primary prevention for child and adolescent drinking have been targeted primarily toward

family-based and school-based interventions. Of the two, the family-based interventions have shown much more promising data with respect to long-term efficacy in reducing later misuse and/or abuse of alcohol. These interventions work by influencing the behaviors of both parents and children at both the individual and environmental levels. They include such practices as increasing awareness of the risks and consequences of underage drinking, clarifying expectations regarding alcohol use, implementing behavioral management practices, encouraging parental involvement in children's activities, and reducing availability of alcohol while increasing the costs associated with underage drinking. School-based interventions traditionally have shown little efficacy and tend to report small effects. However, those that have yielded some favorable results have tended to focus on some of the more social aspects of drinking; addressing social norms, social influences (peer pressure), and interactive peer-led components.

Systemic and environmental interventions tend to take a similar approach to that of the family-based prevention efforts previously described. They seek to reduce the availability of alcohol while increasing the costs associated with underage drinking. Increased monetary expenses (such as raising the cost of alcohol or taxes imposed on alcohol sales) as well as stiffer legal penalties for alcohol-related offenses have both been associated with reductions in alcohol use and associated problems. A number of studies have also documented that community-focused interventions that enforce zero-tolerance social and legal policies (for example, targeting businesses that sell alcohol to minors) can significantly reduce the supply of alcohol available to minors, and have been shown to be associated with reductions in alcohol-related injuries and deaths and fewer alcohol-related arrests among adolescent and young adult populations [2]. Perhaps what is most apparent in each of the interventions described so far is that the most favorable outcomes have been observed in those interventions that addressed the availability and social acceptability of underage drinking. A report by the U.S. Surgeon General illuminated the issue of social acceptability stating: "the perception that alcohol use is socially acceptable correlates with the fact that more than 80% of American youth consume alcohol before their 21st birthday, whereas the lack of social acceptance of other drugs correlates with comparatively lower rates of use"[6].

Individual intervention for adolescent alcohol use can be a complex matter as there is no single pattern of drinking associated with this population. Such factors as age of onset of the problem, frequency and quantity of drinks consumed, and comorbidity of additional substance use and/or psychological problems can all bear direct impact on the type of intervention best-suited to the individual. However, current evidence suggests that the best interventions for children and adolescents tend to be brief and available to the child in her/his existing environment (home, school, or primary care setting rather than inpatient or other extended care settings). Family and systemic approaches, cognitive-behavior therapy, and Motivational Interviewing are among the approaches currently favored in research outcomes. The research also suggests that combinations of these interventions may also be effective and particularly warranted in higher-risk cases [2].

Summary

Alcohol consumption among child and adolescent populations is a complex problem with far reaching consequences. The prevalence of alcohol misuse and associated problems among these populations has been well-documented on a global scale and speaks to the seriousness of the problem. Current research suggests that the problem should be considered from a developmental framework, taking into account that unique facets of both physiological and psychological changes that occur during adolescent development, and the reciprocal impact alcohol and developmental processes can have on one another. The best available evidence suggests that individuals who begin drinking earlier in life are far more likely to experience more negative outcomes in the long-term. Further research is needed to address the shortcomings in current assessment and diagnostic criteria that do not fully account for the complexities of adolescent behavior. Despite this need, it is abundantly clear that the magnitude of adolescent drinking and associated consequences is of grand proportions and is deserving of both careful attention and continued research efforts. Changing the trajectory of this problem likely requires interventions at a number of levels including individual, family, and systemic approaches; and the developmental aspects of adolescent drinking suggest that social components must be addressed in changing the cultural acceptability associated with adolescent drinking behaviors.

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Drive

►Motivation

Drug Addiction

►Chemical Dependency

Drug Habit

►Chemical Dependency

DrugBank #APRD00682

►Chlordiazepoxide

Dual Diagnosis

►Comorbidity

Duloxetine

►Cymbalta

Duplicity

►Dishonesty

Duralith

►Cibalith-S

Dusting

►Inhalants

Dwarfism

Synonyms

Little people

Definition

Dwarfism is short stature resulting from an abnormal medical condition. It is sometimes defined as an adult height of less than 4 feet 10 inches (147 cm).

Dwarfism can be caused by about 200 distinct medical conditions, such that the symptoms and characteristics of individual dwarfs vary greatly. In the United States, people with dwarfism are often called little people.

Disproportionate dwarfism is characterized by one or more body parts' being relatively large or small in comparison to those of a normal adult, with growth abnormalities in specific areas being apparent. In cases of *proportionate* dwarfism, the body appears normally proportioned, but is abnormally small; the term *midget* originally described proportionate dwarfs. Hypotonia, or a lack of muscle, is common in dwarfs, but intelligence and lifespan are usually normal.

Achondroplasia is a bone-growth disorder responsible for 70% of dwarfism cases. In achondroplasia, the limbs are disproportionally short compared to the trunk (abdominal area), with the head larger than normal and characteristic facial features. Conditions in humans characterized by disproportional body parts are typically caused by one or more genetic disorders in bone or cartilage development. Extreme shortness in humans with proportional body parts usually has a hormonal cause, such as growth-hormone deficiency, once called *pituitary dwarfism*.

There is no single treatment for dwarfism. Individual abnormalities, such as bone-growth disorders, sometimes can be treated through surgery, and some hormone disorders can be treated through medication, but usually it is impossible to treat all the symptoms of dwarfism. Lifestyle changes often are needed to cope with the effects of dwarfism. Such devices as specialized furniture often help people with dwarfism to function normally. Many support groups help sufferers of dwarfism cope with the challenges they face and with developing and maintaining their independence.

Dwarfism is a highly visible condition and often carries negative connotations in society. Because of their unusual height, people with dwarfism are often used as spectacles in entertainment and portrayed with stereotypes. For a person with dwarfism, heightism can lead to ridicule in childhood and discrimination in adulthood.

Short stature can be inherited without any coexisting disease. Short stature in the absence of any abnormal medical condition is not generally considered dwarfism. For example, a short man and a short woman who are in normal health will tend to produce children who are also short and in normal health. While short parents tend to produce short children, persons with dwarfism may produce children of normal height, if the cause of their dwarfism is not genetically transmissible or if the individual does not pass on the genetic mutation.

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Dyadic Therapist

►Family Therapist

Dynamic Assessment

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D

Synonyms

Graduated learning; Learning potential assessment; Mediated learning; Scaffolding; Testing the limits

Definition

Dynamic assessment is used in educational settings to assess a child's ability to profit from instruction. It is based on the educational theories of Lev Vygotsky, who proposed the children learn best when the teaching-figure is instructing the child on how to do something within the child's zone of proximal development, and learning is scaffolded [1].

Description

Traditional assessment of child intelligence using tests such as the Wechsler Intelligence Scale for Children is static: it is an assessment of what a child's cognitive abilities and problem-solving strategies are. In dynamic assessment, performance is evaluated, but tasks have performance-contingent feedback and instructional components. Dynamic assessment thus assesses the degree to which a child performs better as a result of this instruction in addition to level of performance. It is seen as an interactive approach to conducting assessments, as well as a philosophy for conducting assessments and evaluating teaching more generally. Dynamic assessment is not seen as a viable replacement for traditional ability testing, but should be used in conjunction with it [3, 5, 6].

A wide range of problem-solving tasks are used in dynamic assessment. These are typically evaluated in a pretest-intervention-posttest format in which evidence of learning is based on how much better a child's posttest performance is over their pretest levels. This assessment approach is seen favourably by educators as this is essentially what teachers are doing: taking a child with a specific skill set, teaching them new problem-solving strategies, and then hoping to see improvements in performance. In dynamic assessment, it is important that the instruction or series of problem-solving prompts be scripted so that the intervention can be operationally defined and delivered in a standardized way to different children. In fact critics of dynamic assessment pointed out that it is only when instruction is standardized that

reliable and valid assessment data can be collected. The concept of dynamic assessment is also applicable to educators who wish to evaluate the effectiveness of teaching as actual educational content from the curriculum could be assessed before and after it is taught. In addition to a child's final knowledge base, it is their improvement in performance that indicates their ability to profit from instruction.

Dynamic assessment has been found to have predictive validity of future performance above and beyond that of traditional static measures [2, 7]. It seems particularly suited to children who have a variety of developmental disabilities and learning problems. It may be tailored to assessment in a specific domain, for example, in reading [4] or mathematics, which are two common achievement domains children have learning problems in that also vary on relevant cognitive processes. For example, phonological processing that affects word attack skills (i.e., "sounding out" words) is relevant to reading and not numeracy. In addition, students with poor metacognitive skills may benefit from dynamic assessment, and in fact metacognitive training and problem-solving strategies are part of the instructional component of the assessment process. So it has been argued that dynamic assessment is better suited to provide educational recommendations than traditional static assessment methods. This is because dynamic assessment addresses whether instruction is effective or not, and if so, which kind? It is less dependent on background experience and language skill, so it may be less discriminatory towards disadvantaged groups of children who may be weak in these areas.

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Dynamic Psychotherapy

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Synonyms

Psychodynamic therapy; Psychotherapy; Therapy

Definition

Dynamic psychotherapy refers to modes of therapy in which patients emphasize understanding interpersonal and intrapsychic patterns in their lives and how these affect their thoughts, feelings and behaviors. Although different psychodynamic therapies may have different theoretical positions and use different techniques of practice, the basic therapeutic goal is similar, i.e., to help a patient gain self understanding [2, 4, 5].

Description

Early in the twentieth century, Sigmund Freud established himself as the father of dynamic therapy when he theorized about the structure of the mind, describing the Id, Ego, and Superego and how they worked with and against each other. Psychoanalysis was the technique used to bring the workings of this structure to consciousness and eventually bring a patient to better self understanding. Psychoanalytically oriented, dynamic therapy is a less intensive form of treatment than psychoanalysis. It emphasizes how past history, especially relationships, influences current functioning.

Freud's basic psychodynamic ideas influenced the development of psychoanalytic theory (ego psychology in the middle of the century followed by developmental psychologies, more recently interpersonal and relational psychologies) and other personality theories in his own generation (e.g., Carl G. Jung's analytic and Alfred Adler's individual psychologies) and throughout the century (e.g., Carl Rogers and Abraham Maslow's humanistic and Rollo May's existential psychologies). [1] Although, again, there are differences between specific types of therapy and between nuanced understandings about "free will," implicit in the practice of dynamic therapy is the concept of agency or choice. Patients ultimately are responsible for the choices they make in living [1–3].

Dynamic therapy is more fully understood when contrasted with behavioral therapy, which questions the possibility of scientifically understanding the interior workings of the mind. During the 1920s and 1930s, at the same Freud was developing his theories on the structure of the

mind, the American psychologist John B. Watson, following in Ivan Pavlov's footsteps, emphasized the importance of conditioning. He believed that study of behavior is the only reliable way to gain understanding. [1] Behavioral therapies, therefore, have traditionally focused on changes in behavior and symptom relief rather than on self understanding. Behavioral therapies, like dynamic therapies, have become increasing refined throughout the twentieth century and into the present, (progressing from Skinner's work to current cognitive-behavioral theories and techniques) and increasingly have embraced concerns about self understanding and personal responsibility.

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Dyscalculia

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Synonyms

Learning disability in math; Math deficit; Math difficulties; Math disorder; Math dyslexia

Definition

Dyscalculia includes a wide variety of math difficulties including the inability to comprehend the meaning of numbers and their quantities, and the inability to comprehend basic addition, subtraction, multiplication and division calculations. Acalculia refers to the total inability to do math, whereas, dyscalculia refers to less severe difficulties in performing math problems.

Description

Dyscalculia is thought to involve problems with language and visual centers of the brain. Theories have suggested that it may either be inherited or may be due to insults in normal brain development such as prenatal or environmental toxins. Proof of a genetic component has been shown in studies of monozygotic and dizygotic twins which demonstrated that MZ and DZ twins were 12 and 8 times more likely, respectively, to have dyscalculia than the general population. Preterm birth and low birth weight have also been cited as risk factors for the development of dyscalculia. Some suggest that poor teaching and environmental deprivation may also be implicated in its etiology.

The term "developmental dyscalculia" (DD) has been created to distinguish the problem of dyscalculia seen in children from that evident in adults following specific insults to the brain.

Studies have estimated that approximately 3–6% of the population is affected by DD. It is seen equally in both boys and girls, despite the fact that learning disabilities are generally more prevalent in boys. Dyscalculia, like dyslexia, usually becomes evident during the first few years of grade school. It has been associated with a number of co-morbid conditions such as attention deficit and hyperactivity disorder (ADHD), anxiety disorders, Fragile X syndrome, Turner syndrome, Gerstmann's syndrome and epilepsy.

Of those children with DD, only about 1.8% possess pure DD. The remainder have comorbid dyslexia, as well. Aster and Shalev [2] suggest that this is due to a difference in the pathophysiology. In those with pure DD, there is most likely a genetic predisposition resulting in a numerical core-system deficit. Those with combined dyslexia and DD likely possess additional mechanisms which involve delayed speech and language development.

One classification scheme for dyscalculia divides it into five subtypes: [1] alexia and agraphia for numbers [4] spatial dyscalculia [5] anarithmetia (loss of numeric values or their manipulation) [6] attentional sequential dyscalculia and [7] mixed type. Although these distinctions are rarely utilized clinically, it allows one to better comprehend the spectrum of difficulties that those with DD may encounter.

Neuroimaging affords researchers the ability to localize areas of deficit in children with DD. Typical children tend to show activity mainly in the left frontal and parieto-temporal regions of the brain. However, patients with DD tend to show defects in the left parieto-temporal area. Additionally, when participants with DD were asked to perform certain arithmetic tasks, the intraparietal sulcus and left middle frontal gyrus were highlighted as the most active areas of the brain. In contrast, controls showed activation of the intra-parietal sulcus bilaterally and minimal activation of the left frontal gyrus. Further imaging studies have suggested that children with DD attempt to

recruit "substitute" regions of the brain to compensate for the lack of normal activity. Unfortunately, these efforts are typically ineffectual.

A number of theories have been proposed to explain the development of DD. According to some, there are three underlying origins of dyscalculia. The most common is a visual processing weakness. Visualizing numbers and situations is crucial to the proper understanding of math. People with a weakness in visual processing often have difficulties with spelling and handwriting, as well. The second origin is difficulty in sequencing or in organizing specific pieces of information, a necessary task in mathematics. People with sequencing difficulties often also experience difficulty with memorization in general which may lead to spelling weaknesses, as well. The final origin is simply a phobia of math. This may be due to prior negative experiences, an inconsistency in one's education, or merely a lack of confidence.

Others postulate that the cause of DD is related to a defect in the acquisition of skills necessary to carry out mathematical operations. The first of these is *foundational skills*. This involves visual perception, visual memory and logical thinking. Children with DD may have difficulty with visualizing and distinguishing mathematical symbols such as +, −, ×, ÷. The second aspect is *mathematical skills*, concepts that must be learned such as counting, addition and subtraction. These skills must be learned in a sequential fashion – one cannot add or subtract until one first learns how to count. If skills are not mastered in the proper order then subsequent steps cannot be grasped correctly. The third piece is *knowledge*, ideas that a person must simply know. For example, theorems and definitions must be learned and remembered.

Another theory proposes that number acquisition occurs by a four-step process and that DD is due to a defect in this mechanism. The first step that takes place is inherited. It involves number sense and the ability to discriminate small sets of objects from large sets of objects. This skill is present from infancy and is necessary for the proper progression of number acquisition. It provides the basic meaning of numbers. If step one fails to be established (possibly due to genetic vulnerability), then children may be able to memorize the names of numbers, but may be unable to assign numerical value to those names. The second step, which occurs during the preschool years, involves the process of language development for numbers. Children with deficits in this stage have difficulty in counting and in sequencing of number word elements (i.e., 235). Because stage two entails a language component, children who don't fully develop language properly, may also have comorbid dyslexia. The third step entails the acquisition of the respective symbols for each of the numbers. This occurs during the early schooling years. It is important to properly progress through this stage so that a child can distinguish similar numbers (i.e., 25 versus 52). A failure to develop an appropriate system of symbols results in an inability to progress to the fourth step, which allows one to create a mental number line. This provides a representation of the ordinal position of numbers.

People with DD may demonstrate a wide array of symptoms, depending upon their age. Some may have difficulty in performing certain mathematical tasks whereas others may find it difficult to understand arithmetic concepts. Additionally, those with DD may reverse or transpose numbers – i.e., 56 instead of 65; 743 instead of 437. Other manifestations include difficulty in using a calculator, difficulty with counting money and with financial planning, and an inability to judge the passing of time. Some children may show a poor sense of direction and may also have difficulty in estimating the measurement of an object – i.e., approximating the distance from point A to point B. Although people with dyscalculia have difficulties in understanding concepts related to numbers, their general ability to learn is equal to, or even greater than that of their peers.

The diagnosis of DD is based upon an assessment of the child's arithmetic skills. If there is a significant difference between the child's intellectual potential and his or her arithmetic achievement or if there is a discrepancy of at least 2 years between the child's chronological grade and his/her level of achievement, then a diagnosis of DD can be made. Standardized arithmetic tests are the acceptable methods to assess a child's abilities. During the process of diagnosis, it is imperative that one determine whether DD is a primary diagnosis or a symptom of a greater disorder (i.e., Fragile X syndrome). Moreover, comorbidities should be carefully identified so that they may be treated, as well.

Treatment of DD relies upon a number of factors. Nonacademic skills are important to all students, especially those with learning disabilities. These skills include assuming accountability for one's own behavior, arriving prepared for lessons, meeting deadlines, maintaining appropriate school behavior, following directions, and completing homework assignments. Refining these skills can have long-term benefits. Children with syntactic deficits with numbers require verbalization of concepts. For example, in order to fully comprehend the number 47,632, it will need to be stressed to the child that the "4" represents the ten thousands place, the "7" the thousands place, the "6" the hundreds place and so on and so forth. Interactive learning

tools like the MASTER (Mathematics Strategy Training for Educational Remediation) program can help children with DD to comprehend the concept of mathematical operations. This program utilizes the idea that children with DD can learn arithmetic when provided with number concepts and problem-solving strategies. Additionally, assistive technology such as calculators, digital clocks and calendars should be made available to children with DD.

There is little information regarding the prognosis of dyscalculia. However, fifth grade boys and girls with DD who were followed for 3 years were found to perform in the lowest quartile of their class in 95% of cases. Forty-seven percent of them performed in the lowest fifth percentile. Factors associated with the persistence of symptoms are the severity at initial diagnosis and the presence of arithmetic difficulties in siblings.

Relevance to Childhood Development

Dyscalculia can affect people in different ways in school and throughout their life.

Dyscalculia can be identified at a young age, although it may go unrecognized because it is a less well-known learning disability. According to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR) [1], children with below average intelligence can be classified as having mathematics disorder if math ability falls substantially below that expected for the student's chronological age, measured intelligence, and age-appropriate education. Dyscalculia is often initially identified by a teacher when a student is struggling in school, and subsequently the student is assessed by a professional trained in identifying learning disabilities.

In the early years of school, students with dyscalculia may have difficulty solving mathematical equations, remembering and retaining math facts, and understanding how to apply their knowledge and skills to solve math problems. If basic mathematical facts are not mastered, this can result in difficulty for adolescents and adults in mastering more advanced math problems. When students need special education, special services are provided by the school under the category of Specific Learning Disability (SLD).

Math interventions for students are emerging for both foundational math skills and higher-order problem solving skills. Interventions for math disabilities often consist of not only skills training, but also explicit instruction in strategies such as self-regulation and mnemonic devices [5]. Deciding which interventions to use is a highly individualized process that is dependent on the student's developmental level, current math skills, and requirements of the school district's math curriculum.

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Dysgraphia

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Synonyms

Agraphia; Disorder of written expression; Handwriting; Spelling disabilities; Writing learning disability or specific learning disability (LD)-written expression

Definition

Writing is a complex skill that combines elements of visual-motor coordination, fine-motor coordination, and executive planning. Dysgraphia is a term that is used to describe an inability to produce legible text with minimal effort, and is generally used to describe a disorder of written expression with an onset during childhood.

Description

The research on disorders of written expression is very limited and has been hampered by definitional issues such

that there are no clear operational definitions that address all the components of the written language domain [2]. According to the *Diagnostic and Statistical Manual of Mental Disorders-fourth edition, text revision (DSM-IV-TR)* [1], a disorder of written expression is defined as: assessed writing skills substantially below those expected based on a person's age, intelligence, and education; the writing difficulty significantly interferes with academic achievement or daily activities; and exceeds any present sensory deficits. Therefore, dysgraphia both interferes with handwriting ability, and creates a significant impairment in a person's ability to function in school and/or daily life. Deficits in written expression often co-occur with deficits in oral language, reading and mathematics, and most children identified with learning disabilities demonstrate deficits in at least one academic skill in writing, whether it is handwriting, spelling, or composition [5]. In addition to difficulty writing coherently and neatly, individuals with dysgraphia have problems with spatial orientation and directionality [3].

Although dysgraphia is broadly defined as difficulty with writing, there are three main types of dysgraphia: dyslexic dysgraphia, motor dysgraphia, and spatial dysgraphia [4]. Dyslexic dysgraphia occurs when a child has difficulties with written text and spelling, but drawing or copying text is normal, and fine-motor speed is normal. In motor dysgraphia a child has difficulties with written text, copying text and/or drawing, and fine-motor speed, but spelling is normal. Spatial Dysgraphia occurs when a child has difficulty with written text, copied text and/or drawing, but spelling and fine-motor speed is normal. Thus, academic skills deficits can involve handwriting, spelling and composition or the expression of ideas at the level of text [5].

	Written text	Oral spelling	Drawing/ copying	Fine-motor speed
Dyslexic	Illegible	Poor	Normal	Normal
Motor	Illegible	Normal	Problematic	Abnormal
Spatial	Illegible	Normal	Problematic	Normal

Note: From [4] © 1995 Sage Publications

Dysgraphia can only be diagnosed by a qualified professional. Although specific tests are not well developed, there are many methods for assessing handwriting, spelling, and composition. Qualitative assessments of legibility are most often used to assess handwriting, but simple examination of a student's handwriting does not serve as a basis for diagnosis. It is important to observe a child in self-generated handwriting, drawing, and copying of text through the use of standardized measures such as the *Test of Written Language, third edition* (TOWL-3) or the written expression scale of the *Oral and Written Language Scales* (OWLS). In addition, it is important to perform a motor skills assessment through the use of tests like the *Beery–Buktenica Developmental Test of Visual-Motor Integration, fifth edition*, or *Bender Visual-Motor Gestalt Test.* The child may also be referred to an occupational therapist for further assessment of fine-motor activity. Standardized achievement tests, such as *the Kaufman Test of Educational Achievement-second edition* (KTEA-II), often evaluate spelling using a single word dictation approach and composition is usually evaluated with a spontaneous writing sample that is evaluated for subjective components of written narrative, but handwriting is rarely assessed.

Results from a study conducted by Volman, van Schendel, and Jangmans [8] demonstrate that two different mechanisms may underlie the quality of handwriting in children with and without dysgraphia. While the best predictor of success in children without handwriting difficulties appeared to be fine-motor coordination, the best predictor of success for children with handwriting difficulties was visual-motor integration. Therefore, interventions for children with dysgraphia should include both fine-motor coordination, and an improvement of visual-motor integration.

Relevance to Childhood Development

Written competency, a critical skill, is important for success both in school and throughout adulthood. In a study conducted by McHale and Cermak [7] it was reported that 30–60% of an elementary student's time is spent engaged in fine-motor activity, with writing as a major activity. Reporting the results from several studies Karlsdottir and Stefansson [6] estimate the prevalence of dysfunctional handwriting in school children to be 10–25%. In addition, 66–88% of the children with handwriting difficulties are boys. However, very little is known about the etiology, developmental course, and prognosis of writing difficulties, and even less is known about the long term outcome of writing interventions.

Currently, it is thought that to have successful handwriting, there must be an interaction between the child and instruction. The child must have the motor, cognitive, and attentional abilities to produce adequate handwriting, and the school must provide adequate instruction to assist the child in this process. If a student has been exposed to adequate instruction and still displays difficulties with written expression, then s/he may qualify for special education services under a specific learning disability (SLD) as defined by the Individuals with Disabilities Education

Improvement Act (IDEIA, 2004). Under the IDEIA a student may be diagnosed with a learning disability in written expression via several methods including standardized testing or using a response to intervention (RTI) method. Although, it is important to note, that a difficulty with handwriting alone would not qualify an individual as having an SLD under the IDEIA's criteria.

After qualifying for services, a student may be eligible for accommodations and modifications. For example, a school psychologist may recommend interventions like: shortened writing assignments, extra time for completion of writing assignments, and/or additional instruction. In addition, an occupational therapist may assist the student with proper positioning, handwriting, and/or the use of assistive technologies.

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Dyskinesia

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Synonyms

Hyperkinesia syndromes

Definition

Dyskinesias encompass a cluster of disorders, often involving pathology of the basal ganglia, characterized by abnormal uncontrolled performance of muscular movements that may be excessive or repetitive in nature; specific symptom manifestation is distinguished by underlying pathophysiology.

Description

Patients with dyskinesia may display either hyperkinetic or hypokinetic signs and symptoms. Presentation may include orofacial dyskinetic movements in areas such as the tongue, muscles of the lips, jaw, or other areas of the face. Dyskinesia may also be observed as myoclonus or choreoathetoid movements in the trunk and upper or lower extremities, patients may have tics, tremor, ballismus, display dystonic movements, stereotypies, athetosis, akathisia, grimace, or have ataxia. There may be dyskinetic movements in the diaphragm or manifest in other areas of the body such as the legs. Dyskinesia may manifest in a variety of the aforementioned symptoms coinciding with its underlying pathology, which is often associated with basal ganglia involvement. Unilateral focal basal ganglia lesions are likely to result in abnormal movements contralateral the lesion. Dyskinesias may be congenital in nature, and associated or induced from other external stimuli such as through the use of antipsychotics. Specific disorders such as schizophrenia, mental retardation, cerebral palsy, autism, or Tourette's syndrome may involve abnormal movements as part of their associated symptom presentation. Acquiring baseline data prior to the inception of treatment may facilitate differential diagnosis when a dyskinesia is suspected. Also, collecting follow-up data is useful in determining the course and effects of treatment. In children with cerebral palsy, dyskinetic movements may be differentiated from spastic movements by a smaller than normal step profile, a wider more variable base of support, and by an increased and more variable maximal lateral acceleration [7].

Chorea

Often due to basal ganglia degeneration, insult, or abnormality, chorea (Latin for "dance") is characterized by involuntary hyperkinetic movements that tend to be transient, rapid, abrupt, or arrhythmic, and advance unpredictably from one muscle or area of the body to another interrupting normal movement. Although choreic movements are purposeless, patients may attempt to integrate them into their behavioral repertoire to mask or make them less noticeable. Choreic movements in the

arms such as flailing, flinging, or thrashing are referred to as ballism or ballismus. Ballismus has classically been observed in patients with lacunar infarcts of the subthalamic nucleus, but may be the result of other lesions. Hemiballismus may be observed in patients contralateral to a basal ganglion lesion such as in the subthalamic nucleus.

In children and adolescents, chorea may be due to a number of conditions including paroxysmal dyskinesias, perinatal hypoxia, immune-mediated conditions such as Sydenham's chorea or systemic lupus erythematosus, or hereditary disorders such as juvenile Huntington's disease, Wilson's disease, dentatorubropallidoluysian atrophy, or benign hereditary chorea. Choreic movements may be present in metabolic abnormalities including hyper and hypothyroidism, hyperglycemia, hypoglycemia, hyponatremia, or mitochondrial cytopathy. Symptoms may also manifest in postcardiopulmonary bypass. Drug or toxin exposure such as through use of neuroleptics, anticonvulsants, contraceptives, cocaine, and excessive dosages of L-dopa may evoke choreic movements. Chorea may develop with the introduction of infectious agents including syphilis, encephalitis, Lyme disease, neoplasms, vascular dysfunction, degenerative disorders, as well as other conditions that affect the basal ganglionic structures. Also, hemichorea may occur contralateral to a focal lesion in the basal ganglia. A specific and homogenous pathology subsuming variable disease states and their coinciding choreic manifestations has not been established; accordingly, a uniform treatment regimen is not feasible. Current treatment of chorea focuses primarily on increasing levels of acetylcholine and gamma-aminobutyric acid, or by reducing dopaminergic stimulation. Likewise, the prognosis for chorea is highly variable and dependent upon underlying pathology. For example subsequent to streptococcal infection, dyskinetic disorders such as Sydenham's chorea may be accompanied by neuropsychiatric difficulties which may require therapeutic intervention in addition to pharmacotherapy [6]. Although chorea may be the most common type of dyskinetic movement observed subsequent streptococcal infection, evidence suggests a high prevalence of other dyskinetic symptoms including dystonia, myoclonus, stereotypies, motor tics, and opsoclonus.

More common in developing countries, Sydenham's chorea is one of the most prevalent types of acquired chorea affecting children. In patients with Sydenham's chorea a history of rheumatic fever may be common. Involuntary movements, hypotonia, speech difficulties, impairment in writing, balance difficulties, as well as other symptoms may present within 4 months following infection. Onset is likely to occur in childhood to late adolescence, and appears to be more common in females. Some have hypothesized that Sydenham's chorea is due to a cross reaction between antistreptococcal antibodies and striatal neurons. Anticonvulsants have been shown to facilitate improvement and overall outcome in patients; however, following the first attack of Sydenham's chorea as many as 37% or more of patients may experience and additional attack [8]. Prophylactic penicillin treatment may be efficacious in preventing subsequent episodes.

Dystonia

Dystonia is a rare disorder of enduring muscle contraction(s) exteriorized in sustained distortions of movement such as abnormal posturing, twisting movements, other distortions, or slowed movements in the trunk, face, or limbs. Symptoms may be sporadic and intensify with activity. Dystonias are classified as generalized, focal, multifocal, segmental, or unilateral, and may be idiopathic or be secondary to another condition such as another movement disorder, part of a hereditary degenerative disorder, toxin induced, psychogenic, or paroxysmal Drug-responsive dystonia usually presents within the first 12 years of life, and often involves the muscles of the feet. Differentiating drug-responsive dystonia from cerebral palsy is important because it can be alleviated by low doses of levodopa [11]. The most prominent form of dystonia in children is idiopathic torsion dystonia, which has a mean onset at 12–13 years of age and is believed to have a genetic basis [13]. Symptoms are typically evident in the legs prior to the arms, and may become more generalized or segmental. Anticholinergic medications may be helpful for patients with primary dystonia in alleviating symptoms, while neurosurgical treatment may be necessary for more severe presentations. In contrast, treatment with levodopa treatment has been shown efficacious in specific secondary dystonias. Treatment may vary depending on the underlying pathology.

Tics

A tic is an abrupt motor or vocal expression that is heralded by a compulsion and followed by feelings of appeasement. Vocal tics may manifest as coughing sounds, grunting, barking noises, or even through obscenities (coprolalia). Tics may be either simple or complex. Whereas simple tics are single and isolated occurrences, complex tics involve patterns or sequences of behaviors. In children, vocal and motor tics are commonly observed in Gilles de la Tourette's syndrome. Symptoms may include echopraxia, echolalia, coprolalia, palilalia, and other

motor and vocal tics. In contrast to transient tics, Tourette's syndrome tends to persist and may alternate between periods of exacerbation and relative remission. Tics may increase with stress. The male to female ratio in Tourette's syndrome may be around 4:1, with a mean age of onset around 7 years of age, and overall prevalence rates of about one percent [14]. Tourette's syndrome may have a higher than expected rate of comorbidity with other psychiatric disorders. Treatment for Tourette's syndrome involves at educating the patient and significant others. In circumstances in which a patient's symptoms become especially severe pharmacotherapy may be necessary. Dopaminergic antagonists and behavior therapy have been shown to significantly alleviate symptoms.

Stereotypies

Stereotypies refer to an array of nonpurposeful repetitive behaviors, either verbal or nonverbal, that may result in difficulty functioning or interfere with everyday activities. These behaviors may be simplistic or involve multiple parts of the body, and last for minutes in duration. Children with stereotypic movement disorder exhibit nonpurposeful and nonfunctional behavior for at least 4 weeks, their symptoms are not better accounted for by another disorder, the physiological effects of a substance, or a general medical condition, except for mental retardation if the symptoms are severe enough to warrant an additional diagnosis. In addition, these symptoms must significantly interfere with normal activities or result in self-harm [1]. Stereotypies in patients with mental retardation may include behaviors that result in self-harm such as hair pulling, eye gouging, or head banging. Stereotypies may also be observed in children with Rett's disorder in hand washing or rubbing movements. The presence of stereotypies in patients with autism spectrum disorders is common, with some children developing them before their first birthday. In children with autism finger-flicking, hand-flapping, body rocking, clapping, and head shaking may be common. Similar to patients with mental retardation, stereotypies may become self-destructive. Behavioral programs may be useful in the treatment of stereotypies by reducing the frequency of undesirable behaviors. Stereotypies may also be observed in other disorders such as schizophrenia, or as continuous stereotypy in neuroleptic-induced tardive dyskinesias.

Akinesia, Bradykinesia, and Hypokinesia

Akinesia refers to an absence of motion in a patient, whereas hypokinesia refers to a reduction of the frequency or amount of movement. Bradykinesia refers to a slowed initiation or completion of motion. Unilateral lesions to the supplementary motor area may initially result in either global bradykinesia or akinesia. Either ventral, bilateral caudate, or globus pallidus vascular lesions may result in akinesia. Right frontal lobe lesions can result in bradykinesia and left-sided hypokinesia. A form of neuroleptic-induced Parkinsonism may include symptoms of akinesia, hypokinesia, or bradykinesia. Treatment for the development of neuroleptic related akinetic symptoms may include either a reduction in dosage or the introduction of an anti-Parkinsonian medication. Other disorders featuring akinetic movements include fetal akinesia and neuroleptic malignant syndrome.

Due to basal ganglia involvement, about one third of patients with Wilson's disease develop signs of neurologic involvement including bradykinesia or hypokinesia. Other symptoms may include chorea, rigidity, tremor, dystonia, dysarthria, ballism, dysphagia, disinhibition, delusions and hallucinations, attentional difficulties, as well as other associated complications. Wilson's disease is an autosomal recessive disorder involving abnormal copper metabolism. As a result of altered metabolism, copper accumulates and affecting the brain and liver, as well as various organs throughout the body resulting in neurologic, psychiatric, and renal signs and symptoms.

Tremor

Tremors are characterized by oscillatory rhythmic movements that tend to be bidirectional. Tremors can be classified as resting tremors, postural tremors, or intention tremors. Resting tremor may be observed in a part of a patient's body while they are relaxed or stationary. Once a patient initiates movement the resting tremor will subside or attenuate. Due to the fact that resting tremor does not affect patients while they are in motion, the tremors may not directly impair daily living. Postural tremor occurs during muscle contraction, for example when actively holding a hand suspended in a particular position against gravity. Intention tremor occurs during directed goal oriented behaviors in which a patient experiences abnormal, swaying, or oscillating movements en route their intended target. The tremor typically increasing in intensity as the hand approaches its destination. Rubral tremor, in which a patient has difficulty maintaining posture or initiating movement, may be caused by brain infarcts, Wilson's disease, or multiple sclerosis. In Wilson's disease, asymmetrical resting, postural, or intention tremors are often accompanied by wing-beating movements. Rubral tremor is believed to be due abnormalities in the red nucleus or due to interruption of the fibers that traverse the red nucleus. Tremors may also be medication-induced, due to stroke, traumatic brain injury, brain stem

tumor, vitamin E deficiency, psychogenic in nature, or due to physiological reactions such as a fear response. Tremor is uncommon in children. Treatment of tremors varies depending on subtypes and underlying etiology. In patients with postural tremor β-adrenergic antagonists may be useful, while L-dopa and anticholinergics may be useful in patients with resting tremor. In patients with Wilson's disease penicillamine, trientine, or zinc acetate may be useful in alleviating tremor.

Athetosis

Athetosis refers to a cluster of abnormal involuntary movements that may include dysarthria, postural instability and impairment of postural reflexes, and other continuous, writhing, sinuous, or slow movements or impairment predominantly in the distal muscles and in the tongue, face, trunk, and neck. Athetoid movements may be associated with additional signs and symptoms depending upon the underlying pathology. These can include speechlessness, deafness, intelligence deficits, and other difficulties that are due to neurological trauma. Symptoms may manifest months or years following brain insult, and are likely to occur in the developing brain rather than adult brain. Athetosis in children may accompany medication-induced dyskinesias, lesions to basal ganglionic structures including the putamen and caudate, in kernicterus, ataxia telangiectasia, metabolic disorders, hypoxia, or in those with paroxysmal dyskinesias, as well as other disorders such as athetoid cerebral palsy. Athetosis may be differentiated from chorea by the lack of irregular, quick, and jerky movements, and is likely to involve muscles responsible for complex movements. However, if athetoid movements combine with choreic movements they are labeled choreoathetoid.

Myoclonus

Myoclonus refers to abrupt, rapid, and involuntary jerky movements of a specific muscle or group of muscles. Myoclonus can be unilateral, bilateral, or focal. There are two types of myoclonus; positive myoclonus refers to jerky spasmodic movements caused by acute muscle contractions, while negative myoclonus refers to movements or inhibitions resulting from muscle relaxation. Presentation of myoclonus is highly variable, occurring either frequently or infrequently, isolated or in a pattern, and usually occurs while a patient is at rest. However, myoclonus may be precipitated by a specific external stimuli or be self-induced through voluntary movement. Myoclonus may be mild or severe enough to disrupt daily movements and functioning. Myoclonus is further classified as action myoclonus, cortical reflex myoclonus, essential myoclonus, palatal myoclonus, progressive myoclonus epilepsy, reticular reflex myoclonus, stimulus-sensitive myoclonus, and sleep myoclonus. Myoclonus may also be classified as either epileptic or nonepileptic. Myoclonus may ensue following exposure to toxins, injuries to the central or peripheral nervous systems, be due to hypoxia, renal defects, lipid storage disorders, cancers, Creutzfeldt-Jakob disease, or in childhood disorders such as multiple sclerosis, epilepsy, and early myoclonic encephalopathy (EME). Specific anatomical structures involved may include the basal ganglia, cerebellum, cortex, brain stem, or spinal tract. A wide variety of pharmacological treatments are used to reduce symptoms of myoclonus including tranquilizers and barbiturates, but milder forms of myoclonus may not require pharmacotherapy. Myoclonus may also necessitate more than one medication depending on specific symptom presentation and underlying etiology.

EME is a rare epileptic disorder that develops usually within the first 3 months of life, and is typically characterized by sporadic, fragmentary myoclonus and other types of seizures, delays in psychomotor development, and hypotonia. Symptom presentation may become more complicated with increasing age. A suppression burst pattern is often observed during electroencephalography in patients with EME, and may be of diagnostic utility in differentiating if from other epileptic disorders. EME may be idiopathic or associated with metabolic defects such as nonketotic hyperglycinemia, D-glyceric academia, propionic academia, Menke's syndrome, molybdenum cofactor deficiency, and methylmalonic academia. Magnetic resonance imaging and laboratory workup may be helpful in determining underlying pathology and aid in differential diagnosis. When understood, targeting of the specific originator(s) with pharmacological treatment can prevent EME symptom expression. Although aggressive treatment may be beneficial, overall prognosis is poor with frequent death before the age of one with approximately 50% mortality before the age of two [12].

Paroxysmal Dyskinesias

Paroxysmal dyskinesias (PxD) refer to rare hyperkinetic disorders that manifest during consciousness that are typically characterized by fleeting symptoms such as dystonia, chorea with ballismus, or choreoathetosis. Dystonia may be most prevalent. Dyskinetic movements are more often unilateral than bilateral. Paroxysmal dyskinesias include kinesigenic or nonkinesigenic, hypnogenic, choreoathetosis with episodic ataxia and spasticity, benign paroxysmal torticollis of infancy, or exertion-induced. Attacks may last for as long as days or be seconds in duration, and may be precipitated by a specific trigger.

Some patients may experience an aura preceding an attack. Paroxysmal kinesigenic dyskinesias may be more frequent in males than in females ranging from 3 or 14:1, respectively. Paroxysmal dyskinesias most commonly present from childhood to adolescence, and onset may vary from days to years depending on the underlying pathophysiology. Paroxysmal dyskinesias may be observed as early as two and one half years of age or younger. Exertion-induced PxDs and paroxysmal kinesigenic dyskinesias appear to be associated with epilepsy in children. Although exact etiology is not uniform, several genetic loci have been implicated [3]. In addition to idiopathic and familial PxDs, manifestations may stem from peripheral or central trauma, vascular lesions, kernicterus, multiple sclerosis, metabolic abnormalities, or other types of insults. A specific treatment is not established; however, anticonvulsants, clonazepam, or botulinum toxin injections may be effective treatments for specific patients. Anticonvulsants may be more effective for patients with paroxysmal kinesigenic dyskinesias than those with paroxysmal nonkinesigenic dyskinesias.

Primary Ciliary and Biliary Dyskinesias

Primary ciliary dyskinesia, most often an autosomal recessive genetic disorder, stems from ultrastructural defects of the cilia that are believed to produce a mucociliary clearance dysfunction. The abnormal mucociliary clearance may affect both the upper and lower airways and is often associated with respiratory symptoms, chronic infections, airway obstruction, chronic respiratory airway disease, as well as other complications.

Biliary dyskinesia, hypothesized to be due to dysfunction of the sphincter of Oddi, is diagnosed if symptoms associated with biliary colic are present without the presence of gallstones. Patients with biliary dyskinesia may suffer from abdominal pain, intolerance to fatty foods, flatulence, nausea, vomiting, fatigue, or other symptoms. A cholecystokinin test with measuring ejection fraction is often useful for making diagnosis. Laparoscopic cholecystectomy has been shown to be very efficacious in relieving associate symptoms in more than 70% of patients [5].

Neuroleptic-Induced Dyskinesias

Neuroleptic related dyskinesias may range from mild to severely incapacitating, and transient or chronic in course. To increase diagnostic homogeneity and facilitate a more uniform communication of research, a set of six provisional categories for tardive dyskinesia (TD) we developed. These categories were constructed to provide information regarding observable changes in the expression of dyskinesia, temporal relation to symptoms, signs, and medication, and alterations to medication dosage. To meet criteria for *probable* TD patients should have a history of neuroleptic use for a period of at least 3 months, must present with moderate dyskinetic movements, the symptoms should not be better accounted for by another disorder associated with abnormal movements, and the patient may or may not be currently receiving pharmacotherapy. Criteria for *masked probable* TD is met when criteria is fulfilled for probable TD; however, following an increase in dosage level moderate dyskinetic movements are no longer present. When criteria is met for probable TD, without the presence of moderate dyskinetic movements following a 3 month period, and the patient is not currently being treated with neuroleptics or dosage levels have not been raised (applies to patients currently receiving neuroleptics) a diagnosis of *transient* TD may be given. A diagnosis of *withdrawal* TD is applicable when there are no observable dyskinetic movements during pharmacotherapy, but symptoms arise within 2 weeks after cessation of treatment. Withdrawal TDs are often reversible and may also be accompanied by other withdrawal features such as nausea and vomiting. To meet criteria for *persistent* TD all criteria for probable TD need to be met for more than 3 months. Lastly, *masked persistent* TD is present if all criteria are met for persistent TD, however, within 3 weeks following either an increase in dosage level, or with the resumption of medication for those not currently on medication, moderate abnormal movements are no longer present [15].

The primary indication for prescription of neuroleptic medication is for the treatment of psychosis. However, in adolescents and children neuroleptics may also occasionally used to treat anxiety disorders, mood disorders, behavioral disorders, hyperkinesis, to attenuate undesirable behaviors associated with mental retardation and autism, and for other neurological and gastrointestinal disorders. Although it is understood that dyskinesias may be related to neuroleptic use, the exact underlying mechanisms are not completely understood. Evidence suggests that TD may be due to dysfunction in the dopamine system. In addition to neuroleptic-induced dyskinesias, other medications that block dopamine receptors such as selective serotonin reuptake inhibitors (SSRIs), antihistamines, calcium channel blockers, as well as other medications such as anticonvulsants may be associated with the development of TD or dyskinetic movements.

Evidence suggests higher rates of dyskinesia associated with typical versus atypical antipsychotics in both children and adolescents. Cumulatively lower dosages and temporal exposure to antipsychotics in children may explain

their lower incidence of tardive dyskinesia compared to adults. Neuroleptic-related withdrawal symptoms may also not be a significant risk in younger populations [9, 16]. However, duration and dosage do not necessarily dictate whether or not dyskinetic movements will manifest. Patients may develop dyskinetic movements without long exposure to neuroleptics or may never develop signs of dyskinesia after long-term neuroleptic use. In patients with childhood-onset schizophrenia, greater premorbid impairment, positive symptoms, and subsequent greater exposure to neuroleptic treatment may be risk-factors for the development of either tardive or withdrawal dyskinesia [10]. Some evidence supports a relationship between pre and perinatal complications with the development of tardive and withdrawal dyskinesias [2]. Lower IQ may also be a risk factor for developing antipsychotic related dyskinesias [4]. Neuroleptics such as clozapine and haloperidol may suppress dyskinetic symptoms, but withdrawal dyskinetic symptoms may reemerge with subsequent cessation of drug treatment. Anticholinergic medications may suppress symptom manifestation in as little as 30 min, and are the primary treatment for tardive dyskinesia.

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Dyslexia

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Synonyms

Developmental dyslexia; Reading disability; Reading disorders; Word blindness

Definition

The term *dyslexia* refers to a ▶learning disability in reading characterized by weak decoding skills, slow reading speed, and poor spelling. Dyslexia is *not* due to limited intelligence, poor instruction or brain damage.

Description

According to Sally Shaywitz of the Yale Center for the Study of Learning and Attention, dyslexia is the most common type of learning disability [1]. Individuals with dyslexia exhibit difficulty with reading, writing and spelling. Historically, people thought of dyslexia as a visual problem reflected primarily by the reversals in reading and spelling [1]. However, the reversals exhibited by struggling readers and writers tend to be caused more by problems with auditory memory, sequencing, and sound-letter association than by visual perceptual problems per se [2]. Dyslexia, as described in the formal definition adopted by the

International Dyslexia Association is "characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge" [3].

A prominent characteristic of dyslexia is difficultly decoding single words, usually associated with weaknesses in phonological processing. Individuals who have dyslexia typically have difficulty recognizing and manipulating individual units of sound (►phonemes) within the spoken language. They may also have difficulty recognizing rhyming words and breaking words into syllables. In addition to difficulty with phonological aspects of language, individuals most at risk for dyslexia also have difficulty with rapid automatic naming (RAN) tasks. That is, they have difficulty quickly and accurately recognizing and naming series of visually presented information such as familiar objects, numbers and letters. Individuals who have both phonological and rapid naming deficits are most at risk for reading difficulty, according to Maryanne Wolf, proponent of the "double deficit hypothesis" of dyslexia [4].

For many years dyslexia has baffled the educational and medical communities and has been the subject of debate. However, there is a consensus on several points. Researchers tend to agree that dyslexia is a language-based learning disability of biological origin, which can persist into adolescence and adulthood. Dyslexia has perceptual, cognitive, and language dimensions. While persons with dyslexia have problems with decoding, they exhibit typical functioning in many other cognitive and academic areas [5]. In fact, Shaywitz refers to dyslexia as a weakness in a "sea of strengths" (p. 58) [5].

Growing research evidence indicates that there is a neurological basis for dyslexia [6]. Genetics studies (i.e., studies examining incidence of dyslexia in families and in twins) indicate that reading disabilities tend to be inherited. Further, results of brain imaging (►functional magnetic resonance imaging or fmri) studies show that individuals with dyslexia tend to process information while reading in different areas of the brain than those not identified. Specifically, individuals with dyslexia rely more than same-age normally reading peers on the parts of the brain involved with sounding out and analyzing words and less on regions associated with automatic recognition of words. Encouragingly, some fmri research has shown changes in brain functioning after children with dyslexia participated in academic interventions designed to improve automatic word recognition. Though neurobiological in origin, dyslexia is not a result of disease or brain damage. Rather, it occurs normally in a small percent of the population and is observed across cultures and languages. Estimates range from as low as 5% to as high as 25% of the population, depending on severity.

Diagnosing Dyslexia

Though brain imaging studies yield valuable information about the neurobiological underpinnings of dyslexia and the reading process, it is premature to use this technology for diagnostic purposes. When a parent or teacher suspects dyslexia, a referral should be made for a psychoeducational evaluation by a psychologist or educator with expertise in assessment and remediation of dyslexia. Unfortunately, there is no single, valid, assessment instrument that yields measures of all the relevant skills and abilities [2]; consequently examiners must select from several assessment batteries. Diagnosis requires assessment of academic skills (sight word recognition, phonetic word decoding, reading fluency, reading vocabulary and comprehension and spelling) and cognitive skills (phonemic awareness, rapid automatic naming speed, and short term and working memory and long term retrieval). Language skills and fluid reasoning (i.e., visual spatial abilities) should also be assessed. And finally, detailed family and educational history yield highly relevant information for diagnosis. It is important to rule out inappropriate or insufficient teaching as a cause of reading problems before considering difficulties within the child.

Interestingly, a link between dyslexia, creativity, and/or visual-spatial strengths has been noted anecdotally by many and by several researchers [1, 7]. For example, John Irving, bestselling author (*The World According to Garp* and *The Cider House Rules*), Charles Schwab, CEO of a large and successful investment services corporation, and Patricia Polacco, bestselling children's author (*Thank You Mr. Falker*) all describe themselves as having dyslexia. Wolf makes a compelling case that Michelangelo had dyslexia [7].

Remediating Dyslexia

If persons with dyslexia are to successfully learn to read, early assessment and intervention are critical [8]. To avoid reading failure, preventive and early intervention techniques should be implemented in kindergarten and first grade. Fortunately, there are a variety of effective teaching techniques for students with dyslexia. The Center for the

Study and Treatment of Dyslexia recommends "explicit instruction in phonological awareness, ample repetition and practice to assure learning to mastery, very small increments in new linguistic concepts, integrated decoding and spelling, and direct systematic teaching of all aspects of the sounds of English" (p. 1) [9]. Interventions that focus on improving reading fluency (i.e., speed, accuracy and prosody) have received increasing attention [10]. In addition, technology including hand-held spell check devices and computers with text-to-speech capabilities are increasingly available. Individuals with dyslexia may be eligible for technological assistance from Recordings for the Blind and Dyslexic [11]. Research indicates a balanced approach to reading instruction (i.e., emphasis on both basic reading skills and reading for comprehension) is the most effective for most students [10]. However, extra instruction in basic reading skills and fluency may be required for students with significant dyslexia characteristics. With early intervention, individuals with dyslexia can make significant gains in reading and related skills. And, as they progress through school, use of technological innovations can help decrease barriers to learning that otherwise negatively affect self-esteem.

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Dysmorfia

▶Dysmorphia

Dysmorphia

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Synonyms

Beauty hypochondria; Body Dysmorphic Disorder (BDD); Dysmorfia; Dysmorphic; Dysmorphophobia; Dysmorphic syndrome; Dysmorphology; Muscle dysmorphic disorder

Definition

Dysmorphia, from the Greek word dysmorfia, is the congenital malformation or the perceived belief that a bodily part is abnormally shaped, disfigured, or flawed that can tend to lead to a preoccupation with one's appearance.

Description

The classification of the term dysmorphia can be viewed in two different lights. The first incorporates the medical model as a physical medical condition where one is born with a birth defect (e.g. congenital). For example, when an individual is born with a malformed ear or limb it would be medically termed as a dysmorphic feature. On the other hand, strongly based out of a psychological perspective, defines dysmorphia as a slight or imagined defect in one's appearance. This obsession with an anomaly in one's appearance and body image can lead to a mental disorder called Body Dysmorphic Disorder (BDD). The DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders, 4th Ed., Text Revision) [1] defines BDD as (a) an obsession with an imagined defect in appearance, (b) the flaw causes major distress in all areas of functioning, and (c) the signs and symptoms are not otherwise explained by another existing psychiatric disorder. Individuals with dysmorphia can develop particular grooming rituals and behaviors as a way to disguise or hide their perceived flaw in their appearance, such as wearing excessive make-up, baggy clothing, or using a limb to cover the body part as some examples. BDD joins the category of Somatoform disorders, which are mental disturbances

with co-occurring physical complaints such as pain or nausea etc. that cannot be explained by a general medical condition [7]. Diagnosis of a Somatoform disorder implies that the root of an illness is based out of psychology distress; otherwise explained by psychosomatic symptoms. The most common areas of focus are: "facial features, skin blemishes, thighs, stomach, breasts, buttocks, and genitals", but virtually any part of the body can be viewed as being the defect [2, p. 66]. Additionally, observers usually do not notice the source of imperfection although the flaw is magnified for the person experiencing the dysmorphia. In general, BDD affects 1% of all adults from the population, with students accounting for 2% to 13% of those diagnosed, and 13% of patients in psychiatric facilities [5]. Many people with dysmorphia, especially those with BDD, often seek out treatments such as cosmetic surgery and dermatologic treatments to fix what they perceive as a physical problem when in reality mental health practitioners are needed to cope with a psychiatric problem.

The causes of dysmorphia can be linked to several different factors. The cause is not entirely known, but theories suggest people with strong body image dissatisfaction, the experience of childhood trauma or teasing, or genetic hereditary factors may contribute to this form of dysmorphia [3]. Body image concerns are commonplace, especially for young girls and women. It is when these concerns are markedly excessive and consume one's ability to function properly in everyday life constitutes dysmorphia, which can lead to a more serious psychiatric condition BDD.

Relevance to Childhood Development

As children progress into the adolescent stage of development when developing one's identity and a sense of conformity are at the forefront; body image and appearance can be used to measure one's sense of self worth. During adolescence, some can experience teasing related to whether or not their body size, body weight, or appearance mimic those often preferred by peer groups or societal standards of beauty. If one experiences teasing because of their lack of ability to model these preferred ideals, potentially a child could be at risk to develop signs and symptoms of dysmorphia. It is quite common for signs of early onset BDD to begin during the adolescent years. In recent studies, 30% of adolescents would consider having cosmetic surgery themselves as a means to correct some type of perceived flaw or defect (e.g., dysmorphia) with also 68% know someone who has already undergone cosmetic surgery [4]. Adolescents with dysmorphia can develop these grooming rituals and behaviors early on as a method to camouflage the imagined flaw in their appearance, which can potentially lead to the pursuit of medical interventions like cosmetic surgery as a means to "fix" the defect upon entering adulthood.

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Dysmorphic

►Dysmorphia

Dysmorphic Syndrome

►Dysmorphia

Dysmorphology

►Dysmorphia

Dysmorphophobia

►Dysmorphia

Dysnomia

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Synonyms

Anomia; Word finding; Word retrieval

Definition

Dysnomia is a difficulty with, or inability to, retrieve the correct word from memory when need.

Description

Dysnomia impairs an individual's ability to recall words, names or objects. Normal individuals often have some difficulty recalling words, which is often referred to as the "tip of the tongue phenomenon", but dysnomia is more severe and interferes with daily life. A person with dysnomia exhibits normal speech but has severe difficulty in recalling words, names, or objects needed for oral or written communication [9]. Individuals with dysnomia exhibit word finding difficulties characterized by word finding pauses, circumlocution, faulty word selection or the replacement of the word with a synonym in an attempt to express their thoughts without using the word they are having difficulty retrieving, as well as difficulty naming objects and recognizing objects by name [6]. The terms anomia and dysnomia are often used interchangeably [8]. The difference between dysnomia and anomia (defined as the complete inability to name familiar objects) is the degree of dysfunction, such that individuals with dysnomia exhibit a lesser degree of dysfunction than do individuals with anomia. Dysnomia can be a symptom of another disorder, or a long term condition [1]. Dysnomia is often a symptom of conditions and illnesses such as alcohol intoxication, electrolyte imbalance or low blood sugar, concussion, hyperthermia, hypothermia, and hypoxemia, or as a side effect of certain drugs. Dysnomia can be a long term condition as a result of a learning disability, dementia, a brain injury (TBI, CVA), or aging.

Relevance to Childhood Development

In children, the term dysnomia appears most commonly in reference to learning disability, but word finding problems may be seen in students with reading problems, language difficulties, and attention problems, as well as with children with known brain pathology [1]. Lerner [7] reported that students with learning disabilities retrieve words significantly slower than peers and that their word finding problems are life-long sources of difficulty in reading and learning. Word finding difficulties have also been identified in children with specific language difficulties. These children have word finding difficulties in single word retrieval, connected discourse, or both. Word finding difficulties are also common sequelae in acquired or congenital brain injury and are often associated with other memory deficits. Word finding deficits associated with brain injury are most commonly seen with left hemisphere cerebral damage.

Formal assessment of a child's word finding difficulties is needed to develop an individualized intervention plan. Several instruments have been developed specifically to assess word finding. The *Test of Word Finding-Second Edition* (TWF-2) [3] is designed for children ages 4–12 and is fairly sound psychometrically. The *Test of Adolescent and Adult Word Finding* (TAWF) [4] is designed for individuals aged 12–80 and although psychometrically sound its normative population is relatively old (obtained in the 1980s). The *Boston Naming Test*, a part of the *Boston Diagnostic Aphasia Examination-Third Edition* [5] assesses word finding difficulties in adults. Research has shown that rapid automatized naming tasks that measure the ability to rapidly name common objects, letters, digits, and colors, or retrieve words provides an adequate measure of dysnomia in children [2]. Variations of tasks of rapid naming can be found on several standardized measures of intelligence and achievement used with children and adolescents. For example Naming Facility (RAN) on the *Kaufman Test of Educational Achievement-Second Edition* (KTEA II) or Retrieval Fluency and Rapid Picture Naming on the *Woodcock Johnson III Normative Update: Tests of Cognitive Abilities* (WJ III COG NU). Intervention in word finding difficulties needs to be comprehensive with respect to its focus and application. A comprehensive intervention program for a child should focus on three areas: retrieval strategy instruction, self advocacy instruction, and word finding accommodations [2].

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Dysphoria

►Anhedonia

E

2004 Education for All Handicapped Children Act

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Synonyms

Individuals with disabilities education act (IDEA)

Description

Education for All Handicapped Children (EAHC) was first introduced in 1974. The reason that this law was first enacted was that in 1974 many states had laws that explicitly excluded children with certain types of disabilities from attending public school, including children who were blind, deaf, and children labeled "emotionally disturbed" or "mentally retarded."

The EAHC is now known as the Individual with Disabilities Education Act (IDEA). The IDEA is a federal law which ensures early intervention, special education, and other related services for individuals' with disabilities. It addresses the educational needs of children with disabilities from birth to the age of 21. The reauthorization of IDEA in 2004 revised the statute to align with the requirements of the No Child Left Behind Act (NCLB). NCLB allows financial incentives to states who improve their special education services and services for all students. States who do not improve must refund these incentives to the federal government, allow parents choice of schools for their children, and abide by other provisions. Some states are still reluctant to educate special education students and seek remedies through the courts. However, IDEA and NCLB are still the laws of the land to date.

Legislative History

1974 – The Education for All Handicapped Children Act (EAHCA) became LAW. It was renamed the Individuals with Disabilities Education Act (IDEA) in 1990.

1990 – IDEA first came into being on October 30, 1990 when the "Education of All Handicapped Children Act" (itself having been introduced in 1975) was renamed "Individuals with Disabilities Education Act." (Pub. L. No. 101–476, 104 Stat. 1142). IDEA received minor amendments in October 1991 (Pub. L. No. 102–119, 105 Stat. 587).

1997 – IDEA received significant amendments. The definition of disabled children expanded to include developmentally delayed children between 3 and 9 years of age. It also required parents to attempt to resolve disputes with schools and Local Educational Agencies (LEAs) through mediation, and provided a process for doing so. The amendments authorized additional grants for technology, disabled infants and toddlers, parent training, and professional development. (Pub. L. No. 105–17, 111 Stat. 37).

2004 – On December 3, 2004, IDEA was amended by the Individuals With Disabilities Education Improvement Act of 2004, now known as IDEIA. Several provisions aligned IDEA with the No Child Left Behind Act of 2001. It authorized fifteen states to implement 3-year IEPs on a trial basis when parents continually agree. More concrete provisions relating to discipline of special education students was also added. (Pub. L. No. 108–446, 118 Stat. 2647).

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2008 Education for All Handicapped Children Act

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Synonyms

Individuals with disabilities education act (IDEA)

Description

Education for All Handicapped Children (EAHC) was first introduced in 1974. The reason that this law was

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first enacted was that in 1974 many states had laws that explicitly excluded children with certain types of disabilities from attending public school, including children who were blind, deaf, and children labeled "emotionally disturbed" or "mentally retarded."

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Early Academic Skills

►Learning Readiness

Early Childhood

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Synonyms

Infancy

Definition

The period of development from 2 to 6 years of age.

Description

Development

The early childhood period of development is when a child is between 2 and 6 years of age. Physical development during this period is marked with the slowing of body growth rate, increases in fine and gross motor skills, and increases in brain development. Cognitively, children learn to form stable concepts and begin developing mental and symbolic reasoning. Children also develop intuitive thought which explains why they ask many "why" questions. In terms of social development, tantrums are common at the outset of early childhood as children seek greater autonomy. Conscience, gender, and morality develop primarily through interactions with peers and adults.

Education

Early childhood educational programs exist for children from birth to age 8. Language, cognitive, motor, sensory, emotional, and social development are all targeted in early childhood programs. Teaching is often child-centered and focused on learning through play. Families are involved in early childhood programming. Different psychological and educational theories drive early education practices. Two developmental psychologists having a strong impact on early education are Jean Piaget and Lev Vygotsky. Piaget's

main contribution was clustering learning events into four stages of development: the Sensorimotor Stage, the Pre-Operational Stage, the Concrete Operations Stage, and the Formal Operations Stage. The early childhood years subsume the Pre-Operational Stage marked by increases in the development of intelligence, memory, imagination, and egocentrism. Developmentally-appropriate practice is a hallmark of early childhood programs and is achieved by providing classroom experiences with learning concepts typical of the age of the children. Constructivism is a Piagetian educational theory postulating that children form their own meaning and knowledge through interactions with their environment. Vygotsky contributed the notion of teaching in the zone of proximal development, or a level just past the mastery level of the child. Examples of curricula based on constructivism are High/Scope and The Creative Curriculum. Montessori education is based on a maturational theory of learning and the Reggio Emilia approach is a blend of constructivism and maturationism. These programs all share the notion that children learn through their own experiences rather than through instruction from a teacher.

Behavioral psychology, on the other hand, suggests that early childhood educators should directly and explicitly teach skills to children. Direct Instruction approaches to reading, math, and language instruction, such as Distar and Reading Mastery, are common behavioral educational approaches. Head Start, a school readiness preschool program for young children from families with low incomes, has provided comprehensive education, health, nutrition, and parental involvement for nearly 25 million children since its inception in 1965. Young children with disabilities are educated under the Individuals with Disabilities Education Act (IDEA). From birth to age 3, the Individualized Family Service Plan is the contract that stipulates services provided to a child and the family, such as speech and occupational therapy services. When a child turns three, services are provided through IDEA by the school district and the Individualized Education Program is the legal document specifying services. Educational services for children with disabilities from birth on are provided by the states at no cost to families.

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Early Head Start

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Definition

Early Head Start is a federal program created by the Administration on Children, Youth and Families (ACYF) in 1995 as a downward extension of Head Start to include infants and toddlers. The focus of Early Head Start is to promote the development of infants and toddlers with low income backgrounds with a strong emphasis on strengthening families.

Description

Early Head Start, under the umbrella of Head Start, is a community-based program based upon nine principles: a dedication to high quality; prevention of developmental concerns and promotion of health, child and family development; positive relationships with children and their families and continuity of care; encouragement of high levels of parent involvement with particular importance paid to the role of fathers; full inclusion of children with disabilities; respect for the home culture and language of the child and family; comprehensiveness, flexibility, responsiveness and intensity of services provided; establishment of effective transitions to Head Start or other child care programs; and collaboration with agencies within the community and other service providers. The overarching goal of Early Head Start is to improve children's competence in all areas of development. This goal is reached through the enhancement of children's growth and development, relationships between parent and child and supporting families.

To ensure effective service delivery, Early Head Start programs may choose to meet the needs of the children and families through a variety of means. Depending upon the needs of the family, the program may provide home-based services, center-based services, a combination of home-based and center-based as well as locally designed services.

In general, Early Head Start programs are characterized as urban and rural, and are run by non-profit agencies. Although many races and ethnicities are represented in programs, the majority of programs are comprised of Whites, African-Americans and Hispanics. Many of the children and families come to the programs with several risk factors such as single parenthood, unemployment and lack of a high school diploma or credential.

Research has shown that Early Head Start may reduce the risk of cognitive deficits and poor academic outcomes. Other areas of positive influence include children's vocabulary development, social–emotional development, parents' self-sufficiency, father–child interactions and parents' emotional support of their children.

Relevance to Childhood Development

Early Head Start fills a need in service provision to infants and toddlers of low-income backgrounds and their families. For many families, Early Head Start programs are their first crucial link to more positive development across the lifespan. It is a program that helps ensure access to quality child care as well as assisting the child in a larger context of the family.

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Early Intervention

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Synonyms

Abecedarian project; Prevention; Response-to-intervention

Definition

Early intervention can be defined as the process of detecting early warning signs of potential problems and providing immediate treatment to minimize the impact.

Description

Early intervention is typically practiced within a prevention-oriented approach to service delivery. Prevention technically occurs prior to any demonstration of symptoms, with early intervention initiated at the earliest sign of a potential problem. The two concepts are closely related and are typically provided along a continuum of services. The purpose of providing early intervention is to prevent the development of more serious and costly problems. That is, by focusing on identification of early warning signs and immediate treatment to address the symptoms, more severe and longstanding difficulties can be avoided or minimized.

One hallmark of early intervention models is the incorporation of universal screening procedures [3]. Screening allows identification of early warning signs, measurement of the severity of risk, and potential direction for early intervention services. The specific type of screening depends primarily upon the target problem and the environment in which screening and early intervention occurs. Early intervention within the context of child development is most commonly encountered in medical and educational settings.

Early intervention initiatives have become a central feature of pediatric medicine, particularly with the growing emphasis on managed care and wellness. The American Academy of Pediatrics recommends routine screening for a variety of health-related and developmental difficulties. Examples of screening procedures used in many primary medical care settings include prenatal and neonatal blood tests, tests for exposure to lead, typical development questions during office visits, and regular monitoring of growth. Some pediatricians even administer structured Autism screening questionnaires. When difficulties or significant symptoms are detected, doctors are able to use screening data to make a referral for further evaluation or early intervention. In medical settings, early intervention can take the form of referral to another provider, behavioral consultation, educational classes, support groups, or mental health services [1].

In educational settings, early intervention services have been slower to develop. In fact, until recently, most attempts at early intervention in the schools have been fairly unsystematic. Over the past decade, however, guidelines and frameworks have been developed and implemented in schools to target difficulties related to behavioral [2] and academic skill development. Most educational models utilize a multi-tiered, or response-to-intervention, framework [4, 5]. Such models emphasize evidence-based preventative efforts, universal screening, and increasingly intensive early interventions for children identified as being at-risk. Educational models also include frequent progress-monitoring of at-risk students to document the effectiveness of early intervention services. Although relatively new to the educational setting, early intervention models have demonstrated strong efficacy for preventing and remediating early behavioral and academic difficulties.

Relevance to Childhood Development

Most widely applied early intervention services target young children. In fact, the goal of intervening at the

first sign of difficulty necessitates identifying the symptoms as early as possible. Problems related to developmental delays, learning difficulties, or development of behavioral competence are often detectible in very young children. Understanding the process of universal screening and early intervention can help childhood development professionals and parents to become strong advocates for children with regard to ensuring the highest quality services as soon as a problem is evident.

Early intervention in educational contexts also stands in stark contrasts to a more traditional, reactive approach to identifying difficulties. The more proactive early intervention framework has utility for supporting and successfully educating all students. Educational professionals who understand the efficacy and potential cost-benefit of early intervention may consider adopting a response-to-intervention approach to service delivery.

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Early Literacy

►Emergent Literacy

Early Onset Schizophrenia

►Childhood Schizophrenia

Early Predictors

►Risk Factors

Early Reading

►Emergent Literacy

Early-Childhood Evaluation

►Play-Based Assessment

Eating Disorders

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Synonyms

Anorexia nervosa; Binge eating disorder; Bulimia nervosa

Definition

Anorexia Nervosa: Anorexia is a serious, potentially life-threatening eating disorder characterized by self-starvation and excessive weight loss in response to a significant disturbance in body size and shape perception [7].

Bulimia Nervosa: Bulimia Nervosa is a food obsession associated with repeated episodes of binge eating followed by compensatory mechanisms to prevent weight gain (e.g., forced vomiting, prolonged fasting, excessive exercising, and/or abuses of laxatives, enemas, or diuretics) [2, 5, 9].

Binge Eating Disorder: Binge Eating Disorder is a relatively, newly recognized eating disorder that falls under the DSM criteria of Not Otherwise Specified and is characterized by frequent episodes of uncontrolled "binge" eating of large amounts of food. It is much like bulimia except individuals do not engage in compensatory measures to prevent weight gain [2].

Description

Anorexia Nervosa is characterized by a morbid fear of being overweight that leads to self-starvation, a refusal to

maintain 85% of normal body weight for their age and height, a profound fear of weight gain, a body image disturbance, a cessation of menstrual periods in women (i.e., amenorrhea), and a decreased interest in sex. When anorexia presents in childhood and/or adolescence, rather than weight loss, there may be a lack of making appropriate weight gains expected with development [2]. Many anorexics also exercise compulsively to lose weight while others use laxatives or induce vomiting [2, 4]. Individuals with anorexia typically weigh themselves repeatedly, portion food carefully, and eat only very small quantities of only certain foods. Some other symptoms include:

- Dramatic weight loss
- Preoccupation with weight, food, calories, fat grams and dieting
- Refusal to eat certain foods, progressing to restrictions against whole categories of food
- Frequent comments about feeling "fat" or overweight despite weight loss
- Anxiety about gaining weight or being "fat"
- Denial of hunger
- Development of food rituals, excessive chewing, rearranging food on a plate
- Consistent excuses to avoid mealtimes or situations involving food
- Excessive, rigid exercise regimen
- Withdrawal from usual friends and activities
- In general, behaviors and attitudes indicating that weight loss, dieting , and control of food are becoming primary concerns [2, 7]

Doctors first observed bulimic behavior in several anorexics in the late 1940s, but bulimia was not widely studied until 1980, when the American Psychological Association developed its diagnostic criteria [9]. Bulimia is a cycle of bingeing and purging [5, 9]. During a binge, bulimics may consume anywhere from 3,000 to 5,000 calories in a 2-h period. To control their weight they purge, usually by vomiting, but also by strenuous exercise, restrictive dieting or fasting, and the use of laxatives, diuretics, or diet pills. These episodes occur at least twice a week for 3 months [2]. Depression, thoughts of suicide, and self-induced injuries such as cigarette burns and cutting often accompany this disease. Many bulimics steal money or food to go on binges. Some take syrup of Ipecac to help induce vomiting. Individuals usually feel out of control during a binge-episode. Food is used to numb feelings and help cope with daily life stressors. Unlike anorexia, bulimics are often at or slightly above their normal body weight and have regular menses [8].

Some additional symptoms include:

- Evidence of binge-eating, including disappearance of large amounts of food in a short periods of time or the existence of wrappers and containers
- Evidence of purging behaviors, including frequent trips to the bathroom after meals, signs/and or smells of vomiting, presence of wrappers or packages of laxatives or diuretics
- Excessive, rigid exercise regimen
- Unusual swelling of the cheeks and jaw area
- Scarring on the back of the hands and knuckles from self-induced vomiting
- Discoloration, staining of the teeth
- Creation of complex lifestyle schedules or rituals to make time for binge-and-purge sessions
- Withdrawal from usual friends and activities
- In general, behaviors and attitudes indicating that weight loss, dieting, and control of food are becoming primary concerns [2, 7]

Most bulimics begin to purge during their late teens, although some don't being until their thirties, forties, and fifties. Others may develop bulimia for a brief time during their late adolescence, give it up, and resume it years later [1, 2, 7]. Like anorexia, bulimia was considered a problem of middle-and upper-class Caucasian women, but researchers today recognize that the problem cuts across boundaries of socioeconomic level, race, and gender [1].

Relevance to Childhood Development

In recent years, the visibility of eating disorders among adolescents and young adults has increased [6]. The typical onset of these disturbances is often marked at the onset of adolescence with 86% reporting onset of illness by age 20 (10% reporting onset at 10 years or younger, 33% reporting onset between ages of 11 and 15, and 43% report onset between ages of 16 and 20) [10, 11]. Both anorexia and bulimia appear to be a reaction to society's emphasis on thinness and exercise [3, 9].

The physical and emotional demands placed on the individual suffering with an eating disorder are far reaching. Anorexia involves denying the body of essential nutrients it needs to function normally. This "slowing down" can have serious medical consequences. A slower heart rate and lowered blood presser increases the risk for heart failure. Bone density decreases and result in an increased risk for osteoporosis. Severe dehydration is common which can result in kidney failure. Overall, there is a feeling of fatigue, overall weakness and an increase in

fainting spells. Additionally, dry skin and hair loss is common. A downy layer of hair called "lanugo" sometimes develops in an attempt to maintain body heat [1].

Bulimia nervosa is extremely harmful to the body. The recurrent binge-and-purge cycles can affect the entire digestive system and can lead to electrolyte and chemical imbalances in the body that affect the heart and other major organ functions [7]. Frequent vomiting increases the likelihood of inflammation and rupture of the esophagus. Chronic irregular bowel movements and constipation occur as a result of laxative abuse. An increased potential for gastric rupture also exists. Tooth decay and staining from stomach acids is prevalent due to the acids released during frequent vomiting [1].

Binge eating disorder often results in some health risks associated with clinical obesity. Some of the potential health consequences include high blood pressure, high cholesterol levels, heart disease, secondary diabetes and gallbladder disease [7].

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Ebonics

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Synonyms

African American English; African American Vernacular English; Black Dialect; Black English; Black English Vernacular; Black Language

Definition

Ebonics is the linking or the combination of the terms Ebony (meaning Black) and phonics (referring to sound) and is the term used to define Black speech.

Description

In 1973 psychologist Robert L. Williams introduced the term Ebonics to define the language usage of some in the African-American community. Williams' earlier work was largely based on his analysis of African American children's language usage. In his 1975 publication of *Ebonics: The True Language of Black Folks,* Williams documented the distinctive linguistic patterns and codes spoken by his participants. In addition, Williams documented grammatical and lexicological differences between the language of his subjects and those of mainstream society [4]. Some researchers have hypothesized that Black speech has its roots in African languages and/or sounds originating from West African Hamito-Bantu languages that have been altered over time [1]. Hence, Ebonics or Black speech may be defined in terms of its features that delineate a "pattern of grammar, morphology, semantics, syntax, and phonology in speech used by culturally identified African-Americans" ([7], p. 68). While Ebonics is used as a method of communication, it is also used as a cultural marker [1]. However, to define Ebonics by only its features is to miss the richness of the language defined by the characteristics of the nonverbal gestures, the rhythmic and emotional quality of the speech often referred to as language style [4, 8].

The Oakland Debate

The Ebonics debate is often shrouded in the school board of the Oakland Unified School District in California's resolution to use the home language of its African American students as a bridge to learning Standard American English. While linguists have documented for

years the validity of Ebonics as a rule-governed language form, the discussion of Ebonics in the media crucified the language at its core, invalidating not only the structures but vilifying speakers of the language. News pundits and media outlets, without the aid of expert opinions, quickly denigrated Ebonics as something that was less than. A deficiency perspective permeated the media and the home language of some African American students was relegated to that of a slang or bad English [1, 7].

Due to the failure of large groups of African-American students in the Oakland School District, a Task Force on the Education of African-American Students was appointed by the school board to address serious educational problems. African-American students comprised 53% of the total school population; however, they were overrepresented in special education programs and underrepresented in gifted programs. Additionally, on average they had a grade point average of 1.80 on a 4.00 point scale, the lowest grade point average for any ethnic group in the district. While the Task Force produced a 24-page document focusing on a variety of solutions, the one issue that occupied the school board's attention on December 18, 1996 was the recognition of Ebonics as an independent language that was genetically based [2]. The school board passed a resolution asking the superintendent of schools to implement a program using the home language of African American children as the language of instruction for the combined purpose of maintaining the language of the home while facilitating the acquisition and mastery of Standard English [2]. In fact this resolution was not new, due to the fact that some area schools in the Oakland school district had already adopted a similar program and were successful at producing high-achieving ethnically diverse students [7].

Some have argued that the media tsunami that followed the Oakland Unified District decision was based on the slow news period during December and January. In fact, the debate that started in December 1996 continues to be waged albeit silently in mainstream society. At the core of the Ebonics debate is whether Ebonics is a language, dialect, slang, or a non-standard form of English. Media attention was swift and negative from both sides of the isle, with mainstream media and activists in the Black community decrying the validity of the language form. In addition, although linguists argued that Ebonics was indeed a rule-governed language, they differed in whether it should be used as an intervention and/or bridge to acquiring Standard English [2, 7]. Prominent Black leaders like Jesse Jackson called Ebonics "garbage language," Kweiski Mfume, president of the National Association for the Advancement of Colored People (NAACP) called Ebonics "a cruel joke," and comedian/actor Bill Cosby called Ebonics "Igbobonics" [7]. Additionally Shelby Steele called Ebonics "broken English" and blamed the Oakland school board for emphasizing self-esteem rather than the academic performance of their students [2]. Others saw the Oakland resolution as separatist ideology that would promote segregation and encourage young Black children to not want to learn Standard English. Given the onslaught of public outcry, it was no surprise that the Oakland School District retreated from its original resolution and proposed a compromise to appease the media and critics. In essence, the school board insisted that its intention was not to teach Ebonics in the classroom but to educate teachers in the language of their students, so that teachers would be able to use the child's home language to facilitate English acquisition [2].

Attitudes Towards Ebonics

The debate on Ebonics rests on whether individuals argue from a deficit or a difference perceptive. A deficit or deficient argument operationally defines language as a function of factors such as African-American social class, educational backgrounds, and biological inheritance. In essence, speaking Ebonics is correlated with cognitive capabilities. On the other hand, a difference perspective defines language as a continuation of cultural traditions forged by American circumstances (e.g., slavery, emancipation, or civil rights movement). A deficit perspective views Ebonics as bad English, poor grammar, and views speakers of this language as uneducated; a difference perspective views Ebonics as a cultural marker that is different and distinct [4].

The deficit and difference perspectives continue to permeate mainstream ideas on African-American usage of Ebonics. In a recent survey of Black and White students' attitudes toward Ebonics and Standard American English, results indicated that Standard American English was the preferred mode of communication for all participants. Black participants preferred to interact with Blacks who spoke Standard English over Black English. In addition, Black participants believed that Black speakers who spoke Standard English were more competent. No significant differences in likability, attractiveness, and honesty, regardless of the mode of communication, were noted. The results also indicated that fear continues to exist that speakers of Ebonics are uneducated [3]. In another survey, college students were surveyed regarding their attitudes toward the use of Ebonics. Results indicated that many of the participants associate Ebonics with socioeconomic

constraints. White respondents were more likely to associate speakers of Ebonics with social deprivation (i.e., a deficient perspective); political orientation, age, and media influenced their views the most. The respondents who identified themselves as conservative were less likely to view Ebonics favorably. In addition, graduate students and senior students were less likely to view Ebonics favorably [1].

To summarize, although the linguistic experts view Ebonics as a rule-governed language, this home language of some African-American children continues to be viewed as slang or bad English in mainstream society, due in part to inaccurate media reports. Unless the public at large becomes correctly educated on the features of Ebonics, false assumptions will continue to be made.

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Eccentricities of a Ethnic or Racial Group

►Cultural Difference

Echokinesia

►Echopraxia

Echolalia

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Definition

The word echolalia comes from a combination of two Greek words. The first is ήχώ meaning "to echo" or "to repeat." The second is λαλιά meaning "to babble" or "meaningless speech." Echolalia is a vocalization in which words and phrases are mimicked and repeated by another person. This repetition can occur either immediately after hearing the utterance, referred to as immediate echolalia, or it may be vocalized at a later time during discourse with another or the same individual, referred to as delayed echolalia.

Description

Echolalia is a repetitious vocal behavior that is most commonly associated with autism. Echolalia affects more than half of the individuals with autism who are able to speak [5]. However, echolalia is also associated with other pathologies such as schizophrenia, Tourette's disorder, Asperger's disorder, aphasia, Rubinstein–Taybi syndrome, and mental retardation. Persistent echolalia is also used as one of the diagnostic criteria for autism and schizophrenia [1, 2]. Echolalia is distinct from palilalia, the repetition of one's own speech, as opposed to another's. This type of echophenomenon is not commonly associated with autism but is with Tourette's disorder and aphasia [13]. Additionally, echolalia is a typical verbal behavior pattern that many children may exhibit when first acquiring and mastering spoken language. When patterns of echolalic vocalizations become a persistent and characteristic pattern of verbal exchange with others, it is considered to be symptomatic of possible psychopathology [6]. Dobbinson, Perkins & Boucher describe echolalia as typically being "lexically, prosodically and syntactically faithful to the model utterance" ([4], p. 300). However, echolalia may take many forms varying from strictly parroting the speech heard by another to changing to the structure of the original utterance by making additions, deletions or substations to the original utterance [9].

The current literature on the function and characteristics of echolalia is mixed. Echolalic behaviors have been described an existing on a continuum varying in severity, intent and the degree in which they are comprehensible [10]. Some argue that echolalia is just meaningless repetition while others assert that it may be functional for the

individual displaying the behavior, demonstrating an attempt at communicating and socializing with others [7].

Kanner [8] originally generated the idea of two separate categories of echolalia, delayed and immediate echolalia. Immediate echolalia is characterized by the instantaneous repetition of another person's spoken verbalizations whereas with delayed echolalia is the term used to describe the repetition of verbal utterances after a significant amount of time has passed. Immediate echolalia is thought not be a meaningless behavior but rather, serve as a way for an autistic child to have social interaction and may be indicative of an attempt to be social and gain meaningful language [9]. Additionally, Prizant, Schuler, Wetherby, & Rydell [11] proposed that immediate echolalia is an important stage involved in children with autism developing "unconventional verbal behavior" (UVB). Delayed echolalia is also thought to have a similar purpose in regards to communicative intent; however the purpose of delayed echolalic responses is much more unclear. Prizant [10] found varying degrees of functionality when examining the echolalia utterances of four boys with autism. At times the use of echolalia seemed to demonstrate an attempt to communicate with others and be involved in discourse but overall, the majority of utterances were lacking features (i.e., turn taking or appropriateness to the current conversation) that were indicative of these children attempting to make social contact through speech.

Overall, the function of any type of echolalia is unclear. The extant literature is rather limited, yields discrepant information, and lack of uniformity in the utilization of an operational definition for echolalic behavior. In comparison, the literature focusing on the treatment of the echolalia appears to be more homogenous. Programs aimed at reducing the amount of echolalic behavior in individuals are generally based on a behavioral framework with the goal to decrease the likelihood that echolalia will be exhibited. However, it may be argued that echolalia in children with autism, may serve an important purpose and may be an important stage in acquiring language. One of the most comprehensive and well-respected treatment programs for children with autism is the SCRETS Model. This model focuses on social communication, emotional regulation and transactional support. As a part of this model, echolalic utterances are replaced by creative responses through social skills training and positive reinforcement of desired behaviors [12]. Other treatments for reducing the amount of echolalic responses focus on targeting specific responses and replacing them with "correct" (i.e., original) responses through constant repetition with flashcards or other techniques that reinforce the use of creative and original responding in conversational discourse [3]. Additionally, research has shown that using cues-pause-point language training can aid individuals with mental retardation and autism learn to use functional and appropriate (i.e., non echolalic) language [7]. This training focuses on using picture cards as cues in order to receive a desired response during a conversation from individuals displaying echolalia. As a whole, behavioral strategies which include positive reinforcement appear to be helpful in decreasing the likelihood of echolalic responses, especially for those with a diagnosis of autism.

Relevance to Childhood Development

It is apparent that limited echolalia may be a normal developmental variant in early language acquisition. However, when it becomes a persistent pattern of behavior, it may be symptomatic of a language deficit associated with disorders such as autism or schizophrenia. Therefore, parents, teachers and childcare professionals should be attuned to echolalic speech patterns and possible co-occurrence of other pathological symptoms. Concerns should be addressed in a timely fashion with a comprehensive evaluation of the child's developmental status, and if necessary, early intervention services promptly employed.

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Echomatism

►Echopraxia

Echomimia

►Echopraxia

Echomotism

►Echopraxia

Echopathy

►Echopraxia

Echophenomena

►Echopraxia

Echopraxia

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Synonyms

Echokinesia; Echomatism; Echomimia; Echomotism; Echopathy; Echophenomena; Echo-reaction; Imitation syndrome

Definition

Echopraxia refers to a pathological automatic imitative response, or desire to mimic other's behaviors. Echopraxia occurs in a semi-automatic manner and is independent of patient insight.

Description

Echopraxia can manifest in a variety of conditions such as in epilepsy, catatonic states such as those observed in patients with schizophrenia, mood disorders, or autism, during states of fatigue, clouded sensorium, or in other conditions such as Ganser syndrome, as well as in other neurological disorders and frontal lobe diseases. Culture-specific syndromes that may exhibit echopraxia include Latah, amurakh, and Imu. Individuals may exhibit echopractic behaviors that are either indiscriminate or selective in respect to their environment. Although echopractic behaviors may occur while observing another's movements, patients may also echo mental images or perceptual stimuli from previous observations of another person's behaviors. Echopraxia may also be specific in nature, such as observed in echographia. Incorporating these types of actions would broaden the parameters of what comprises echopractic behaviors [4]. Related to echopraxia, imitation behavior may be a more benign type environment-driven response, where patients may be able to deny imitative responses; other non-imitative but environment-driven behaviors include alien/anarchic limb syndrome and utilization behavior. However, there also appears to be a spectrum of awareness with respect to echophenomena. For example, some patients with schizophrenia have been reported to avert their gaze from other's movements, or close their eyes to avoid echoing other's actions. Some have suggested that these behaviors may imply a level of subjective cognizance of their own echo-reactions [4]. In contrast, others may be unable to inhibit imitative behaviors even while explicitly instructed otherwise. With respect to treatment, echopraxia is often the behavioral manifestation of varying underlying pathology, as demonstrated by the numerous accompanying disease states, and as such may abate with treatment of the respective etiology.

In those with schizophrenia, echophenomena may often appear to be limited to those with other catatonic characteristics and may not appear in the earlier stages of the illness. These symptoms may become more pronounced during periods in which communication is difficult. As previously mentioned, some individuals may be subjectively aware of their own echopractic behaviors. In addition, some have suggested that echopraxia may be related to underlying delusional thought processes in

those with schizophrenia [4]. Recently, it has been speculated by several authors that echopraxia in those with schizophrenia may be due to a complex network involving the mirror neuron system, inferior frontal gyrus, and motor cortex that is actualized as echo behavior(s) during periods of increased arousal and decreased inhibition. However, more direct evidence for this theoretical conceptualization is necessary [9].

Echopraxia may be considered a type of complex motor tic, which are usually more coordinated and resemble normal behaviors more than do simple motor tics. As with other patients with echopraxia, those with Tourette's syndrome may also learn the tics of other patients they have observed. As previously mentioned, echopraxia may also not be directly present in a patient's behavior, but instead result in the intentional avoidance of situations in which others may exhibit exaggerated movements, so as to avoid an embarrassing echo-reaction. Persons with Tourette's syndrome and echopraxia may also avoid looking at others with tics or other types of movements that may elicit echopractic behaviors. In fact, those with these complex tics may find themselves compelled to the same behavior (either immediately or after a delay) although they perceive the model's behaviors as distasteful or even annoying. In some circumstances these echo-reactions may become integrated as part of an individual's repertoire of tics. Some have suggested that echopraxia in Tourette's syndrome may be associated with dysfunction in the limbic system or anterior cingulate cortex and supplementary motor area system (e.g., [2, 6]). The prevalence of echopraxia among those with Tourette's syndrome may vary from 10 to 21% [7, 10].

In determining whether or not echopraxia is present, an examiner may perform a movement that is preceded with a contradictive verbal command. Performing the mimicked action rather than following the verbal instructions may suggest the presence of echopraxia in the patient. For example, an examiner may request, as they waive their right hand, that the patient touch their right hand to their nose [1]. If a patient is unable to adhere to the instructions, as observed by examples of mimicking the examiner's actions rather than the verbal commands, the patient may be exhibiting echopractic behaviors. In assessing for echopraxia, an examiner may also attempt to elicit echo-reactions from the patient through the performance of spontaneous or abrupt movements. In addition, other measures of executive control, rating scales, or measures specific to the underlying condition may also be useful in determining whether or not echopraxia is present.

Relevance to Childhood Development

Echopraxia itself is not present during normal childhood development; however, some features of behavioral mimicry may be observed during normal development. Piaget [8], for example discusses imitative behaviors in various stages in the developmental context, beginning in infancy and increasing with age. He suggests that individuals progress from primitive sensori-motor intelligence to a formal operational intelligence, where imitative behaviors transition becoming more of a function of conceptual thinking. Furthermore, instances of behavioral mimicry may manifest later in life as well. For example, an attenuated form of echo behavior may be observed when individuals are intensely focused on another's behavior, and echo subsequent imitative movements. Such behavior could include an individual who observes an athletic event and repeats the motions of the athlete imitatively. However, it is important to note that while there may be similarities between these behaviors and those observed in echopraxia that there are no direct linkages. However, as with adults, echopraxia can be observed in a variety of disorders and states that have a childhood onset, such as observed in Tourette's disease, autism, mood disorders, mental retardation, schizophrenia, and other neurological and psychiatric conditions.

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Echo-Reaction

►Echopraxia

Eco-Behavioral Consultation

►Behavioral Consultation

Ecological Systems Theory

►Bioecological Theory of Development
►Systems Theory

Ecological Theory

►Bioecological Approach to Development

Ecological Theory of Development

►Bioecological Theory of Development

Ecological-Transactional Model of Development

►Bioecological Theory of Development

Educational

►Academic Achievement

Educational Aims

►Standard Celeration Charting

Educational Environment

►Classroom Climate

Educational Psychology

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Definition

Educational Psychology is the systematic study of (a) how humans learn, develop, are motivated and affected by educational interventions, and (b) the psychology of teaching, social psychology and research identifying effective instructional practice in schools.

Description

Educational psychology became a field of scientific study in the late nineteenth century through the writings of early psychologists. These pioneers connected early learning theories with practical educational settings [4]. The field has grown dramatically over the past 100 years, and its contemporary application is twofold: to enhance theoretical knowledge; and improve educational practice. Once educational psychologists understand basic psychological processes concerning thinking, learning, motivation, behavior and development, practical application can begin to assess and later identify effective instructional practice [6]. In order to achieve answers to the vast amount of questions that arise concerning teaching, learning, and best practice, educational psychologists apply research methods to collect necessary data and thereby build their knowledge through evidenced-based strategies. These data and strategies are then provided to teachers as principles to allow them to make inferences and predictions about how students may perform and achieve. This understanding helps to explain and predict student behavior [5], thereby giving teachers the tools necessary to interpret, make good decisions, and solve academic, social and behavioral problems in order for children to be successful in school.

Relevance to Childhood Development

The focus of educational psychology is learning. Since learning occurs as a result of an experience creating a relatively permanent change in knowledge or behavior,

the quality of instruction is crucial. When educators possess the information they need to think critically about their craft and make decisions based on evidenced-based strategies, learning environments are created to facilitate learning and achievement to the greatest extent possible [2]. Without recognition of students' motivation, engagement, or developmental readiness, teachers may misinterpret clues of delay, disability, or even giftedness as behavioral problems [1]. In knowing that learning occurs better under certain conditions than other conditions, teachers are privy to opportune learning moments. Even basic knowledge of simple developmental milestones can serve as a catapult for some children whom unsuspectingly need special attention or assessment. Teachers who have a sophisticated understanding of the multitude of factors that affect learning, including motivation, development, environment, socioeconomic status, assessment and teaching represent a front line of defense for best teaching practice. As educators apply their comprehension of educational psychology, their teaching expertise increases in several domains including, but not limited to the following: subject matter competence, goal setting, developmentally appropriate teaching practices, classroom management skills, motivational skills, instructional planning skills, individual variation and differentiation of lessons, working with students from culturally diverse backgrounds, assessment writing and taking skills, etc [3]. These advantages result in a much more intentional, thoughtful teacher; one that is more reflective and careful in pedagogy and instructional delivery. Ground in the theory of educational psychology, these expert teachers leave an enormous positive effect on children's learning, development, character, and possibility for the future.

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Educational Therapy

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Definition

Educational therapy integrates educational and therapeutic approaches in the treatment of individuals with ►learning disabilities or learning problems. Evaluation, remediation, case management, and advocacy services are provided for children, adolescents, and adults with learning disabilities and other learning related conditions [1].

Description

Educational Therapy offers a wide range of intensive, individualized interventions to children and adults with learning disabilities and other learning difficulties in order to remediate learning problems [2]. It places a particular emphasis on understanding and addressing the socioemotional impact of learning disabilities and recognizing and utilizing individuals' strengths. Thus, a major aim is to not only to accurately diagnose and remediate the deficits in learning but also to encourage clients' awareness of strengths so they may utilize those strengths to compensate for areas of weakness [3]. Treatment plans employ and integrate information from a variety of sources including the client's social, emotional, neuropsychological, and psychoeducational contexts [1].

Educational therapists focus on specific aspects of academics and learning including, but not limited to: stimulating intellectual curiosity, reading/writing problems, comprehension of texts across various subject matter, recognition of main ideas, synthesis of information from various sources, problem analysis and problem solving, math related issues, metacognitive approaches, strategies to foster concentration and sustained attention, active learning, organizational skills, short and long-term memory, development of alternative studying approaches, and recognition of positive personal outcomes with proficiency in reading, writing, and math [1]. Social and emotional aspects of learning are also addressed including, but not limited to: understanding the interrelationship between learning and social/emotional functioning in order to bring about positive change, developing competence to improve self-esteem, providing a supportive environment to discuss academic concerns, providing

therapeutic listening, employing strategies to reduce avoidance and resistance, dealing with self-esteem issues, encouraging flexible problem solving, and providing referrals to necessary professionals when needed [1].

The Association of Educational Therapists (AET) is the professional organization of educational therapists, with membership throughout the United States, Canada, Australia, and Republic of Singapore [1]. AET defines the professional practice of educational therapy and establishes ethical and other standards for the professional practice of educational therapy [4]. AET was first formed in California in 1979 in order to meet the needs of a special subgroup of professionals whose work incorporated clinical and educational models of intervention. This clinical/educational teaching model was brought to America from Europe in the 1940s by various pioneers, who had independently trained themselves from the course offerings of two or more disciplines, such as special education, psychology, speech/language, and child development. The lack of university training programs offering this multidisciplinary course of study, as well as the ambiguity in the definition and practice of educational therapy, led to the development of AET. As the only body that formally defines educational therapy and establishes principles of practice and standards for academic and experiential training, AET has worked in partnership with numerous universities and colleges to develop training programs specific to the needs of educational therapists. *The Educational Therapist* is a professional journal published by the AET. It publishes articles and reviews on theory, research, and clinical practice. It also provides information on AET activities and presents issues relevant to the field of educational therapy [4].

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Effect

►Consequences

Effects of Physical Abuse

►Battered Child Syndrome

Effeminate

►Femininity

Effete

►Femininity

Effexor XR®

►Effexor®

Effexor®

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Synonyms

Effexor XR®; Venlafaxine

Definition

A prescription medication FDA approved for the treatment of major depressive disorder, generalized anxiety disorder, social anxiety disorder, and panic disorder in adults.

Description

This medication is a serotonin/norepinephrine reuptake inhibitor available as an extended-release capsule (Effexor XR®) or as a tablet (Effexor®).

The recommended starting dose for the extended release form is 75 mg a day taken once a day. Maximum suggested dose of the extended release form is 225 mg a day. The recommended starting dose for the immediate

release oral tablet is 75 mg a day, taken two or three times a day with a maximum suggested dose of 375 mg a day. This medication should only be taken as directed by a doctor. This medication may need to be taken for four weeks before improvement in symptoms is seen.

This medication should be taken® with food and it is best to take it at the same time each day. It is recommended to swallow the extended release capsule whole. Do not crush or chew. Tell your doctor if you have a history of mania, seizure disorder, liver disease, or kidney disease.

Concomitant use in patients taking monoamine oxidase (MAO) inhibitors is not advised. Serotonin syndrome may occur with the use of certain other serotonergic drugs. Elevated blood pressure is a concern with this medication.

Some side effects are listed here: changes in vision, headache, nervousness, dry mouth, chills, constipation, diarrhea, dizziness, loss of appetite, abnormal dreams, and difficulty sleeping. Certain side effects may go away during treatment. Tell your doctor immediately if you notice the following: actions that are out of control, ringing in the ears, mood changes, seizure, chest pain, or difficulty breathing.

If you choose to stop taking Effexor®, you are encouraged to tell your doctor and slowly taper this medication to prevent withdrawal symptoms.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development

Effexor® is not FDA approved for use in children. Children under the age of 18 treated with this medication are recommended to have their weight, height, blood pressure, and cholesterol monitored regularly.

A medication guide must accompany this medication containing information related to the increased risk of suicidal thinking and behavior in children, adolescents, and young adults compared to those not taking the medication. Doctors will monitor patients closely for worsening of symptoms, change in behavior, and thoughts of suicide. Patients are strongly encouraged to notify their health care provider to report sudden changes in mood, behavior, thoughts, or feelings.

Women should let their doctor know if they are pregnant or planning to become pregnant. It has been shown that neonates exposed during the third trimester have developed complications requiring prolonged hospitalization including respiratory support and tube feeding. It is not recommended to breastfeed while on this medication.

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Effortful Control

▶Attentional Strategies

Egg

▶Ovum

Ego Development Stages

▶Erikson's Stages of the Life Cycle

Egocentric Speech

▶Self-Talk

Egocentrism

▶Adolescent Egocentrism
▶Imaginary Audience

Eight Intelligences

▶Gardner's Theory of Multiple Intelligences

Ejection

►Purging

Elavil®

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Synonyms
Amitriptyline

Definition
A prescription medication FDA approved for the relief of symptoms of depression.

Description
This medication is a tricyclic antidepressant available in tablets.

The recommended starting dose for this medication is 50 or 100 mg taken once a day at bedtime or in divided doses three to 4 times a day. The dose for adolescents is typically 10 mg taken 3 times a day and 20 mg taken at bedtime. Maximum suggested dose is 300 mg a day for adults and 100 mg a day for children and adolescents. This medication should only be taken as directed by a doctor. It may take several weeks before you begin to feel better.

Elavil® may be taken with or without food. Avoid drinking alcohol and grapefruit juice. Tell your doctor if you have a history of a kidney disease or liver disease. Serotonin syndrome may occur with the use of certain other serotonergic drugs.

Some side effects are listed here: drowsiness, changes in sleeping habits, weight gain, constipation, dry mouth, difficulty urinating, and blurred vision. Certain side effects may go away during treatment. Tell your doctor immediately if you notice the following: low blood pressure, muscle stiffness, or rash. Your doctor may monitor your blood sugar levels while on this medication. Signs of an overdose of this medication are slurred speech or confusion, severe drowsiness, low blood pressure, and seizures. If these should occur, seek medical attention immediately. This medication may make you more sensitive to sunlight. There are many drug interactions with this medication. Be sure to tell your doctor or pharmacist about all medications you take.

If you choose to stop taking Elavil®, you are encouraged to tell your doctor.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development
Elavil® is not FDA approved for children under the age of 12. There are many unapproved uses for this medication. Be sure to discuss all the risks and benefits with your doctor before taking this medication.

A medication guide must accompany this medication containing information related to the increased risk of suicidal thinking and behavior in children, adolescents, and young adults compared to those not taking the medication. Doctors will monitor patients closely for worsening of symptoms, change in behavior, and thoughts of suicide. Patients are strongly encouraged to notify their health care provider to report sudden changes in mood, behavior, thoughts, or feelings.

Women should let their doctor know if they are pregnant or planning to become pregnant. Talk with your doctor if you plan to breastfeed. Use of this medication while pregnant or breastfeeding is not recommended.

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Elective Mutism

►Selective Mutism

Electroencephalogram (EEG)

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Synonyms
Brainwave test

Definition

An electroencephalogram (EEG) is a test that uses electrodes attached to a person's scalp to detect abnormalities in electrical activity of the brain.

Description

The EEG records electrical impulses generated by cel lular activity in the brain. Neurons produce tiny electrical impulses that can be recorded by the EEG and presented as wavy lines (frequencies) on a computer monitor. The frequencies recorded by the EEG are then interpreted, and can be used to diagnose or rule out various brain disorders such as epilepsy/seizure disorders, brain tumors, head injury, encephalopathy, encephalitis, stroke, memory impairment, and sleep disorders. An EEG can also be used to confirm brain death of comatose patients.

An EEG test is painless and safe, typically lasting 35–40 min. For patients receiving an EEG during a period of sleep, the procedure may last longer.

Relevance to Childhood Development

There is no reported risk for administering an EEG to children. It is advisable, however, to explain the procedure in advance to reduce potential anxiety with pediatric patients.

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Elenium

►Chlordiazepoxide

Elimination

►Purging

Emaciation

►Anorexia Nervosa

Embedded Figures Test

Synonyms

Group Embedded Figures Test; Children's Embedded Figures Test; Preschool Embedded Figures Test

Definition

Measure of field independence versus field dependence involving visual search for simple figures or objects embedded in larger, more complex figures.

Description

The task was originally developed in 1950 by H. A. Witkin as a measure of cognitive style. Cognitive style describes how individuals think about and process information; according to Witkin, either globally or analytically. Witkin's theory of cognitive style was based on the unidimensional field dependence-independence model. His embedded figures test and group embedded figures test measured an individual's ability to distinguish figures from a distracting or confusing background/field. Individuals having an easier time with the task were considered field-independent types. Those having difficulty were deemed field-dependent types. Field independence has been linked to development of stronger cognitive restructuring skills and better analytical thinking skills. In the learning environment, it is suggested that field independent learners are successful in unstructured settings, whereas field-dependent learners require instructor and peer support for learning. Research has demonstrated a correlation between performance on the embedded figures test and other standard intelligence tests.

The embedded figures test contains 24 (two sets of 12, Form A and Form B) color figures embedded within more complex figures. Individuals have to identify the hidden images as quickly as possible. Their average time per card is converted into a standard score. On the group administered version, Group Embedded Figures Test, individuals are required to identify and trace over 8 embedded images as quickly as possible. The original test versions are appropriate for individuals aged 12 years and older, although younger versions have been released and are aimed at children as young as 3 years of age. The embedded figures test has good internal reliability and test-retest reliability.

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Embrace Reflex

►Moro Reflex

Embryonic and Fetal Development

►Prenatal Development

Emergent Literacy

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Synonyms

Early literacy; Early reading; Reading development

Definition

Emergent literacy is a model describing the process of learning to read.

Description

Two basic models exist regarding the development of early literacy skills: reading readiness and emergent literacy. The reading readiness model represents a traditional perspective, suggesting that children begin learning to read only after they have reached a certain threshold of maturation. According to this model, learning to read begins at a discrete point in time; readiness can be accelerated somewhat via early learning experiences but relies primarily on individual development [6].

The reading readiness model has been deemphasized over the past several years with the introduction of an emergent literacy model. Emergent literacy espouses a more fluid model of reading development, proposing that children acquire early literacy skills through a gradually occurring process, which is not necessarily initiated at a particular developmental threshold. According to the emergent literacy model, very young children who do not read text are nevertheless engaged in the development of important pre-reading skills. Therefore, early learning experiences can play a significant role in building early literacy skills [2].

Emergent literacy researchers have identified a continuum of skills that facilitate successful reading development [3, 4, 7]. During preschool and first grade, children begin developing alphabet knowledge, phonemic awareness, and print awareness. That is, they begin learning the names and sounds of the letters in the alphabet. They also become more adept at isolating and manipulating individual sounds in spoken speech (i.e., alliteration, rhyming). Finally, young children learn about the structure of books (e.g., front and back book cover, directionality of text) and the idea that print is used to communicate meaning.

During first and second grade, children begin developing more conventional literacy skills. Their phonemic awareness is typically well developed, and they often have a strong knowledge of phonics, or letter-sound correspondence. This allows them to decode unfamiliar words and recognize basic sight words. Their level of print awareness also permits them to read brief text with comprehension and to understand basic punctuation.

Children in second and third grade enter into the final phase of early literacy. They generally have a fairly large sight word vocabulary and can decode unfamiliar words accurately. Two major skills characterize this stage of literacy development. First, children begin to read with fluency, demonstrating the ability to read grade-level texts with automaticity. Second, they are capable of self-monitoring as they read. That is, they can pay attention to whether or not the text makes sense. This facilitates comprehension and allows children to quickly detect and correct mistakes.

Relevance to Childhood Development

Knowledge of emergent literacy can assist childhood development professionals in two key ways. First, understanding early literacy as a continual developmental process can assist educators and parents in selecting age-appropriate early literacy activities. For example, toddlers and preschoolers benefit from shared book reading activities that focus on developing an understanding of book structure and the purpose of print. Older preschoolers can engage in reciting nursery rhymes or reading books with rhyming or alliterative content. They also benefit from alphabet books and other activities that encourage them to practice letter names and sounds. As children become

older and demonstrate basic early literacy skills, the focus of activities can also shift to focus on word recognition and decoding. By understanding the developmental trajectory of early literacy and recognizing children's individual progress, activities may be tailored to meet their learning needs [1].

Second, understanding a typical developmental trajectory can help early childhood and elementary school professionals to identify children who are not progressing normally. Successful reading development is critical to academic achievement, and students who lag behind their peers in the middle of elementary school are at-risk for long range academic difficulties [5]. When students can be identified as having difficulties during preschool or early elementary school, extra activities and more intensive, age-appropriate instruction can be provided to remediate early literacy deficits.

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Emotion Control

►Regulation of Emotion

Emotion False Belief

►False Belief Task

Emotion Management

►Regulation of Emotion

Emotion Regulation

►Regulation of Emotion

Emotional Abuse

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Synonyms

Psychological abuse; Psychological maltreatment; Verbal abuse

Definition

A persistent pattern of negative behavior directed at child by a caregiver, which diminishes a child's integrity and well-being.

Description

A type of abuse in which a caregiver degrades, corrupts, berates, belittles, rejects, threatens, ignores, exploits, assaults, spurns and/or terrorizes a child in a repeated pattern [1, 2]. Emotional abuse may also consist of denial of psychological treatment, extreme verbal punishment, unreasonable expectations, and/or lack of responsiveness. This pattern of behavior from caregivers may adversely affect the child cognitively, emotionally, and socially. A caregiver may make a child feel unloved, flawed, or worthless through name calling and/or scapegoating or may be unconcerned with a child's troubles [1, 5]. The presence of emotional abuse may adversely affect later development of the child including symptoms of aggression, depression, poor emotional regulation, eating disorders, substance abuse, social impairment, learning disabilities, and suicidal behavior [3, 5].

In the United States, toddlers, preschoolers, and young adolescents are most commonly emotionally abused, versus other age groups [4]. Emotional abuse can have a multidimensional impact a child's development. Abused children may have insecure attachments to their caregivers and have

problems with emotion regulation, which may lead to alterations in the limbic system of the brain [6]. Poor emotion regulation may influence children to show aggressive or withdrawn patterns with their peers. Without proper intervention and treatment, children who are abused may be affected well into adulthood. As adolescents and adults, they may abuse substances, show symptoms of psychiatric disorders, and engage in criminal behavior [4].

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Emotional and Behavioral Disorders (EBD)

►Behavior Disorders

Emotional Bond

►Emotional Connection, Parent-Child

Emotional Connection, Parent-Child

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Synonyms

Attachment; Emotional bond

Definition

Emotional Connection (or attachment) refers to the special emotional bond with another person that is generally powerful and enduring. It is often used to describe the relationship between infants and their mothers [7].

Description

Scientific evidence provides support to the notion that infants and their caregivers are biologically prepared to relate in ways that promote their relationship. In most of the cases, caregivers are extremely perceptive in understanding their babies' signals and needs and they correspond in appropriate ways that will help them fulfill these needs and will promote social interactions between them and their children. On the other hand, infants are sensitive to "parental emotional-social signals." These types of interactions between caregivers and infants form the basis for early attachment, a unique emotional bond and connection. Successful human development and adjustment is partly based on the quality of the relationship between parents and children, beginning with early attachment [8].

Attachment Theory

Attachment theory, which is the result of the joint work of John Bowlby and Mary Ainsworth, focuses on the development of the child's attachment, during the first year of life, and secondly on the qualitative differences of this attachment [1]. Bowlby, with his evolutionary attachment theory, argues that it is essential for human species to become attached, as infants, with the person who plays the role of the principal caregiver [2]. Attachment behavior has evolved through a process of natural selection because of the need for protection and survival [1].

More specifically, at birth, the infant is equipped with specific behaviors, such as crying, that operate to attract the proximity of the caregiver [2]. Even though infants, during the first weeks of life are unable to understand themselves and others as coherent objects, because of their caregivers caring and interaction, infants instinctively organize their behavior around them. Even in the first weeks of life, infants demonstrate an innate propensity for interaction, expressed by their responses to the sound of voices or to human touch. However, it is the interaction with the primary caregiver that facilitates, in this stage, maturational processes [3].

During the last half of the first year infants go through a new stage of development in which locomotion and directed reaching and grasping emerges, in order for the proximity with the caregiver to be enabled. During this stage, cognitions and behavioral expressions are

developed, in relation to the physical and emotional availability of the primary caregiver, and the infant forms its first inner representation of the primary caregiver [2]. Throughout the 1st year of life, this dyadic relationship is further developed and the child engages in exploratory activities around the "secure base" of the caregiver [3]. The infant gradually develops "working models" or "expectations of regularities" in what happens to him/her in relevance to the physical environment, attachment figures and itself [2].

Attachment of the Child Beyond Infancy

The emotional connection between parents and children does not come to an end after infancy. As children continue to develop their cognitive skills, after the age of 3–4, they start to realize parents' plans and motivations. Therefore, children are now enabled to persuade caregivers to change their plans and adjust them to their own. Moreover, language development enables parents and children to communicate their plans and wishes and agree for mutually acceptable plans. This development of communication facilitates the children's confidence in the stability and mutual understanding with the primary caregiver and now the child is at a position in which he/she can handle separation from the parent with less distress [2].

There is a gradual declination of the intensity and frequency of attachment behaviors through early and middle childhood, meaning that physical proximity becomes less important. However, caregivers' supporting role does not end here. They continue to sustain their children's secure-base behavior and they need to be aware of their child's emotional needs in order to be accessible and responsive. As children grow older they start playing a more active role for maintaining their secure-base behavior and both children and caregivers start sharing the responsibility for regulating their between contact [5]. As the child grows older, and develops in relevance to locomotion, is able to explore and relate to other people as well by venturing away of the secure base of the caregiver. This is more obvious during adolescence when the young person begins the search for partnership. However, even then, the attachment and emotional connection to parents does not disappear, but, even as adults, most people continue sharing a meaningful association with their parents [2].

Attachment Variations

Research findings have revealed that differences in the quality of care provided to children may lead to differences in the quality of attachment relationship. More specifically, punctual and effective caregiver responses to the infants' signals are associated to secure attachment and less maladaptive behaviors at home. On the contrary, less sensitive care is associated with insecure attachment. Additionally, emotional unavailability and emotional rejection of the caregiver is associated with anxious-avoidant attachment and, finally, interfering, ignoring and unreliably responsive care is related to anxious-resistant attachment. Variations of the quality of attachment between caregivers and infants may influence individuals' social and emotional functioning as adults. Concerning social adjustment, in the cases of infants who receive a responsive emotional care and communication with the caregiver, in the first months of life, they are more probable, as adults, to develop confidence in the ability to communicate needs directly, see themselves as worthy of care and develop responsiveness to the social world. On the contrary, infants who do not meet these criteria may not be provided with the experiences needed in order to develop skills for communicating and eliciting social responses [3].

Moreover, children with secure attachment histories, research evidence has shown that are more determined, excited and competent in problem-solving as toddlers, more flexible in preschool and more goal-oriented in early childhood than children who experienced an insecure form of attachment [3]. Additionally, research findings on adolescents, has revealed that detachment from parents is related to negative behavioral and mental-health outcomes [6]. Infants who did not have available and responsive to their needs caregivers, are more at a risk for experiencing later difficulties in developing stable relationships or establish a secure-base attachment relationship with their own children [4].

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Emotional Disorders

►Emotional Disturbance
►Psychological Disorders

Emotional Disturbance

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Synonyms

Behavior disorders; Emotional disorders; Mental illness/disorder; Psychiatric illness

Definition

The term *emotional disturbance* encompasses diagnosable mental disorders of sufficient duration to meet diagnostic criteria specified within the *Diagnostic and Statistical Manual of Mental Disorders* (DSM).

Description

Section 300.7c(4) of the *Individuals with Disabilities Act* (IDEA, 1997) (The *Individuals with Disabilities Education Act* (IDEA) is a United States federal law that governs how states and public agencies provide early intervention, special education, and related services to children with disabilities.) defines *Emotional Disturbance* as ". . . a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree, which adversely affects educational performance: (a) An inability to learn that cannot be explained by intellectual, sensory, or health factors; (b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; (c) inappropriate types of behavior or feelings under normal circumstances; (d) a general pervasive mood of unhappiness or depression; (e) a tendency to develop physical symptoms or fears associated with personal or school problems. The term includes schizophrenia but does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance" [7].

For the child or adolescent to be characterized as emotionally disturbed, it must be determined that his/her condition results in functional impairment, substantially interfering with his/her abilities to function effectively in social, familial, and educational contexts [7]. *Emotional Disturbances* encompass all psychiatric diagnoses. Following are some of the considered as most common emotional disturbances.

Anxiety Disorders

Anxiety disorders are characterized by various forms of pathological fears and anxieties that inflict on the affected individual's psychological well-being. Large-scale epidemiological studies have provided corroborative evidence of a prevalence of 18% in community samples [8]. The most recent revision of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-R) encompasses a wide variety of *anxiety disorders* that reflect differentiated foci of anxiety [2].

Generalized anxiety disorder is characterized by persistent and excessive worry and anxiety (at least 6 months) that is not related to any specific situation [2]. For instance children with *generalized anxiety disorder* may worry excessively and unrealistically for things like grades, performance in sport, and family issues. Symptoms may include restlessness, muscular tension, insomnia, fatigue, irritability, difficulty concentrating, abdominal upsets, and dizziness [2]. Prevalence rates for *generalized anxiety disorder* in the child and the youth is estimated to be in the range of 2.9–4.6% for younger children (younger than 11) and 3.6–7.3% for adolescents [13].

Panic disorder is characterized by recurrent unexpected panic attacks. A panic attack is characterized by sadden intense fear or discomfort for no apparent reason, accompanied by at least 4 of 13 somatic or cognitive symptoms including trembling or shaking, palpitations, sweating, confusion, dizziness, nausea, shortness of breath, fear of dying or losing control and chills and hot flashes [2]. A diagnosis of *panic disorder* also necessitates that attacks have severe chronic consequences such as worry over the attacks' potential implications, persistent fear of future attacks and resulting significant changes in behavior [2].

Specific phobias are characterized by excessive fear of a specific object (i.e., spiders, snakes) or situation (i.e., heights, shots) that is usually inappropriate to the situation and that is recognized by the sufferer as being irrational [2]. A *specific phobia* can result to avoidance of typical everyday situations and is diagnosed if the fear persists for 6 months and interferes with the individual's daily routine [2].

Agoraphobia is characterized by being in a place or situation where escape is difficult or embarrassing or where help may not be available in the event of having a panic attack or panic-related symptoms (e.g., fear of having a sudden attack of dizziness) [2]. Agoraphobia often takes place in the context of a panic attack and

quite often is precipitated by the fear of having a panic attack [2]. The provoked anxiety often results into pervasive avoidance of a variety of situations such as being alone outside the house or being home alone, being in crowed of people, traveling in a car, airplane, or bus, being on a bridge or in an elevator. These pervasive avoidance behaviors can often lead to serious consequences such as being confined to one's home.

Social phobia is characterized by an intense anxiety provoked by exposure to social or performance situations [2]. Social anxiety often manifests specific physical symptoms, including extreme perspiring, blushing, heart palpitations, and faintness [2]. Those suffering from social anxiety will attempt to avoid the source of their anxiety. In severe cases the individual can be lead to complete social isolation.

Obsessive compulsive disorder is characterized by repetitive obsessions (distressing, persistent, and intrusive thoughts or images) and compulsions (urges to perform specific acts or rituals which serve to neutralize anxiety) that are severe enough to be time consuming (i.e., more than hour per day) or induce marked distress or significant impairment [2]. Adults with *obsessive compulsive disorder* have at some point recognized that the obsessions or compulsions are excessive and unreasonable. In children this criterion is not necessitated for diagnosis of *obsessive compulsive disorder* because they may lack adequate cognitive awareness to make such a judgment.

Post-traumatic stress disorder is characterized by reexperience of an extremely traumatic event accompanied by increased arousal and avoidance symptoms [2]. Individuals with *post-traumatic stress disorder* often find themselves reliving the experience through nightmares or flashbacks, avoiding places related to the trauma, and/or detaching themselves from others through emotional numbing, and/or experiencing problems with sleeping, irritability, and poor concentration. Symptoms usually begin within 3 months of the trauma, although sometimes 6 months and even years can pass before the appearance of symptoms [2].

Separation anxiety disorder is characterized by exacerbated and inappropriate levels of worry over being separated from parental figures as manifested by at least three of the following symptoms: (a) Unrealistic worry about possible harm befalling major attachment figures; (b) unrealistic worry that an untoward calamitous event will separate the child from major attachment figures (e.g., killed, kidnapped); (c) persistent reluctance to go to school in order to stay with attachment figures; (d) persistent reluctance to go to sleep without being next to a major attachment figure; (e) persistent avoidance of being alone in the home and emotional distress if unable to follow major attachment figure around the home; (f) repeated nightmares involving a theme of separation, (g) Complaints of physical symptoms on school days; (h) Signs of excessive distress upon separation, or when anticipating separation from major attachment figures; and (i) social withdrawal, apathy, sadness, or difficulty concentrating when not with major attachment figure [2]. For a diagnosis to be made symptoms need to persist for at least 4 weeks.

Mood Disorders

Mood disorders encompass psychiatric conditions in which disturbance in mood is the primary feature [2]. The *major depressive disorder* is characterized by one or more major depressive Episodes (i.e., depressed mood accompanied by at least four additional symptoms of depression for at least 2 weeks). These symptoms include: feelings of helplessness and hopelessness, feeling useless, inadequate, bad, constant questioning of thoughts and actions, an overwhelming need for reassurance, being vulnerable and "over-sensitive," feeling guilty, a loss of energy and motivation that makes even the simplest tasks or decisions seem difficult, self- harm, loss or gain in weight, agitation and restlessness, loss of sex drive, finding it impossible to concentrate for any length of time, forgetfulness, a sense of unreality, physical aches and pains, sometimes with the fear that you are seriously ill, difficulty with getting off to sleep, or (less frequently) an excessive desire to sleep [2].

Dysthymic disorder is characterized by a chronic (i.e., at least 2 years) depressed mood that occurs for most of the day for more days than not and it is accompanied by additional depressive symptomatology that is inadequate to meet criteria for a major depressive disorder. In children the mood may be irritable than depressed and the minimum duration is 1 year [2]. Prevalence of *dysthymic disorder* is estimated to be around 6% (with and without *major depressive disorder*) [2].

Depressive disorder not otherwise specified is designated for coding disorders with depressive features that are impairing but is inadequate, contradictory or do not meet criteria of any other depressive diagnoses (i.e., *major depressive disorder, dysthymic disorder, adjustment disorder with depressed mood, adjustment disorder with mixed anxiety and depressed mood*), or depressive symptomatology that is inade [2].

Bipolar Disorder

Bipolar disorder is characterized by abnormally elevated mood (i.e., mania, or, if milder, hypomania), one or more major depressive episodes, or mixed episodes in which

features of both mania and depression are present at the same time [2]. In most individuals with *bipolar disorder* these episodes are separated by periods of "normal" mood while in others depression and mania rapidly alternate (i.e., rapid cycling) [2]. Acute manic episodes can sometimes lead to psychotic symptomatology such as delusions and hallucinations. The *bipolar disorders* include *bipolar I, bipolar II, cyclothymic disorder*, and *bipolar disorder not otherwise specified*. These differential bipolar diagnoses are based on the nature and severity of mood episodes experienced. Prevalence rates vary from 1% for *bipolar I*, 0.5–1% for *bipolar II* and *cyclothymic disorder*, and 2–5% for *bipolar disorder not otherwise specified* [2]. The onset of full symptomatology typically occurs in late adolescence or young adulthood.

Conduct Disorder

Conduct disorder is characterized by a repetitive and persistent pattern of behavior by which the basic rights of others are violated or age-appropriate societal norms or rules are disobeyed [2]. This must be manifested by the occurrence of at least three features from four categories of behavior for the past 12 months, and at least one criterion present for the past 6 months. The four categories of behavior include (a) aggression to people and animals, as manifested in bullying, threatening, or intimating others, initiating physical fights, using a weapon that can cause serious physical harm to others, being physically cruel to people, being physically cruel to animals, stealing while confronting a victim (e.g., mugging, purse snatching, or armed robbery), or forcing someone into sexual activity; (b) destruction of property, as manifested in deliberately engaging in fire setting with the intention to cause serious damage, or deliberately destroying others' property; (c) deceitfulness of theft, evidenced in actions of breaking into someone else's house, building, or car, often lying in order to obtain goods or favors or to avoid obligations, or stealing items of nontrivial value without confronting a victim, such as shoplifting; and (d) serious violation of rules, as indicated by staying out at night despite parental prohibitions before the age of 13, running away from home overnight at least twice, or school truancy before the age of 13 [2]. These behaviors must cause clinically significant impairment in social and occupational functioning, and usually be present in a variety of settings, including home, school or the community [2]. *Conduct disorder* is among the most common child and adolescent psychiatric disorders, affecting approximately 4–14% depending on age group, gender, and setting [4]. After the age of 18, *conduct disorder* may develop into *antisocial personality disorder*. Robins and colleagues [4] found that 71% of children who displayed severe *conduct disorder* (8 or more symptoms) at *age 6* showed evidence of *antisocial personality disorder* ("... a pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood" [2].) in adulthood. Fifty-three percent of children whose symptoms began between the ages of *6 and 12* displayed *antisocial personality disorder* in adulthood. Forty-eight percent of those who developed symptoms after age 12 showed evidence of this disorder as adults.

Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by developmentally inappropriate levels of Hyperactivity/Impulsivity and Inattention. Symptoms of Hyperactivity/Impulsivity include: (a) Fidgety, squirming in seat; (b) leaving seat in classroom or in other situations in which remaining seated is expected; (c) running about or climbing excessively in situations in which it is inappropriate; (d) having difficulty playing or engaging in leisure activities quietly; (e) being "on the go" or often acting as if "driven by a motor"; (f) talking excessively when inappropriate to the situation; (g) blurting out answers before questions are completed; (h) having difficulty awaiting turn; interrupting or intruding on others. Symptoms of inattention include: (a) failing to give close attention to details; (b) focusing on unimportant information; (c) having difficulties in sustaining attention in tasks; (d) not listening when spoken to; (e) having trouble managing simultaneous stimuli or switching from one task to another; (f) not following through on instructions and failing to finish homework, chores, or duties in the workplace; (g) having difficulty in organizing tasks and activities; (h) being reluctant to engage in tasks that require sustained mental effort; (i) losing things necessary for tasks or activities; (j) getting easily distracted by extraneous stimuli; (k) being forgetful in daily activities [2].

On the basis of these clusters of symptoms the most recent revision of DSM (DSM-IV-R) classifies three subtypes of ADHD: (a) *ADHD predominantly inattentive*; (b) *ADHD predominantly hyperactive/impulsive*; and (c) *ADHD combined* [2]. The diagnosis of *ADHD predominantly inattentive* type is based on the presence of at least six of the symptoms of inattention. The diagnosis *ADHD predominantly hyperactive/impulsive* type is based on the presence of at least six of the symptoms of hyperactivity/impulsivity. For the combined type six symptoms of hyperactivity, impulsivity and inattention (combined) are required for diagnosis. These symptoms need to be present for at least 6 months to a point that is disruptive

and inappropriate for developmental level [2]. Prevalence of ADHD is estimated at 3–5 percent of the elementary age population and it occurs more often in males than females, with the sex ratio being about 4–1 [9].

Schizophrenia

Schizophrenia (deriving from the Greek words σχίζειν, "to split" and φρεν-, "mind") is characterized by positive symptoms (that are present and should not be) and negative symptoms (that are not present and should be) [2]. Positive symptoms in children include gross disturbance of thought process or thought content, whereas delusions most possibly appear (or become apparent) with increasing age [5]. Negative symptoms include flat affect, and paucity of speech and thought [1]. Younger children with childhood-onset schizophrenia are considered to have less delusions and catatonic symptoms, but they display hallucinations, disordered thought process and flattened affect [6]. Sparse epidemiological data suggest that schizophrenia with onset during middle to late adolescence is in the range of 0.5–1.5% [2]. Childhood-onset schizophrenia is reported to be no more than 1% [10].

Causes of Emotional Disturbances

Emotional disturbances vary significantly in nature and their causes are difficult to delineate. They are considered to derive from a complicated set of risk factors including genetics, personality, brain chemistry and life experiences. For instance for *Schizophrenia* the preponderance of evidence suggests that it evolves from a genetic predisposition, a prenatal insult to the developing brain, and stressful life events. For *anxiety disorders* the evidence provides support for inherited differences in specific brain circuits and neurotransmitter systems, an inherited highly reactive *behavior inhibition system* (The Behavioral Inhibition System (BIS, first characterized by Henri Laborit in the early 1970s) may be viewed both as a cognitive and physiological system (Gray 1982). Cognitively, the BIS inhibit behavior that would lead to deviations from expectation. Physiologically, the function of the BIS is associated with the septohippocampal system. Input to this system comes from the prefrontal cortex, and output flows through the noradrenergic fibers of the locus coeruleus, and serotonergic fibers from the median raphe (Gray 1994).), coupled with psychosocial influences (parents model behavior, intrusive parenting, insecure attachment) [3]. For depression neuroendocrine system dysregulation along with psychosocial stressors are implicated [14].

Modern psychiatry eschews the misleading dichotomy of environmental versus biological predisposition and holds that *emotional disturbances* derive from a complex interplay of biological and environmental factors. For some of these disturbances there is some degree of understanding about the interaction of implicated factors. For others it is recognized that still little is known about the pathophysiology of the disorder in question, the pattern of interplay of environmental and biological factors, as well as the potentially diverse developmental trajectories.

Treatment

The treatment of emotional disturbances begins with a complete psychological evaluation that includes a review of one's physical health history. The possibility that specific medications and/or medical conditions are causing the symptoms of *emotional disturbance* is then ruled out. Next, the patient provides the nature and history of the symptoms and a mental status evaluation follows. The outcome of the psychological diagnostic evaluation will determine the choice treatment approach. Often the children and adolescents who meet criteria for *emotional disturbances* carry multiple diagnoses. Crucial for the development of a treatment plan is to determine the comorbit symptomatology. If for instance the patient is presented with psychotic symptoms that are secondary to depression s/he will be prescribed with antidepressant (e.g., selective serotonergic reuptake inhibitors – i.e., flouxetine, paroxetine, sertraline, fluvoxamine, clomipramine). Often, the use of antipsychotic medications in addition to the use of antidepressants or mood stabilizers is indicated in psychosis that is secondary to depression. While medications can be of value, they do not negate the need for psychosocial interventions individualized to each individuals' needs. Psychosocial interventions have demonstrated substantial gains for the treatment of certain emotional disturbances but not all. For instance for the treatment of depression interpersonal psychotherapy and *cognitive-behavioral therapy* have gained empirical support [12]. For the treatment of anxiety related disorders *cognitive behavior therapy* has been documented to result into significant gains [12]. However, for some specific anxiety relates disorders (e.g., specific phobia) reviews on psychosocial treatment approaches revealed that no treatment meets the efficacious criteria [12].

School Interventions

Beyond treatment approaches that are utilized in mental health clinics mostly in an individual basis, school interventions are often in place to meet the needs of certain students whose needs cannot be met in the typical schools. In the United States the IDEA guarantees the provision of *Free Appropriate Public Education* (FAPE) (Free

Appropriate Public Education stands for the provision of *Individuals with Disabilities Education Act* (IDEA), *Americans with Disabilities Act* and the *Rehabilitation Act* of 1973 to provide to students with emotional disturbances with an educational program that is individualized to a specific child, designed to meet that child's unique needs, and from which the child receives educational benefit.), which is an educational program that is individualized to the emotionally disturbed child. FAPE is designed to meet that child's unique set of needs, and from which the child gains substantial educational benefit. To provide FAPE, schools must provide students with an "... education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment, and independent living" (http://www.ed.gov/about/offices/list/ocr/docs/edlite-FAPE504.html).

These special educational programs for children with emotional disturbances aim to develop social skills, increase self-awareness, self-control, and self-esteem. They provide a structured environment where students are able to experience success, rules and routines are predictable and students are consistently rewarded for appropriate behavior. Behavior management techniques, such as positive reinforcement, token economies, contracting, and time-out, which rely on direct measurement and monitoring of behavioral change, are systematically utilized in these programs. The assessment and systematic teaching of social skills through modeling, discussion, and rehearsal are frequently generated to enable students gradually develop self-control, self-awareness and improve their relations with others.

Beyond school interventions, there are also community based treatment approaches that are utilized for the treatment of serious emotional disturbances. For instance the Pennsylvania's family based program has a structural family therapy approach and clinician training focused on appreciation of individual culture. Reports evaluating treatment outcome indicate significant treatment outcome of such innovative initiatives [12]. However these treatment outcomes are best described as evaluations of internal programs rather than in the form of an empirical inquiry intended for peer-reviewed rigorous studies.

Despite the substantial gains often reported from studies addressing treatment approaches for children and adolescents with *emotional disturbances* there is an urgent necessity for methodologically rigorous controlled treatment studies that will be evaluating the efficacy and long-term outcome of the treatment approaches. There are however substantial obstructions to rigorous treatment outcome research in this field. The disturbances of children with emotional difficulties tend to be of varied nature, often they are characterized by multiple psychiatric diagnoses and consequently it is complicated to assess the effectiveness of a specific treatment approach [12].

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Emotional Disturbances or Behavioral Disorders (ED/BD)

▶Behavior Disorders

Emotional Incontinence

►Emotional Lability

Emotional Intelligence

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Synonyms

Emotional self-efficacy; Social intelligence

Definition

Emotional intelligence (EI) is an extension of social intelligence that describes a person's innate cognitive ability to perceive, identify, assess, understand, manage, and explain emotions in order to reason, guide thinking and action, solve problems, and regulate behavior. Empathy, or the understanding of other's feelings, is a critical characteristic of EI. Proponents of EI theory argue that it is the best predictor of success in life and creates the best social relations. EI influences behavior in a wide range of domains including school, community, and the workplace [1].

Description

History

Intelligence quotient (IQ) tests are administered to measure cognitive abilities, including verbal/numerical memory and reasoning and other problem solving skills. For a long time, the results of these tests were considered the primary predictor of future success. However, some researchers proposed that IQ results alone were not always the best indicator of high levels of success. One of those was Psychologist Reuven Bar-On, who coined the term "Emotional quotient" as an analogue to IQ. How well an individual was able to cope with the social and emotional factors should also be considered. This thinking led to the development of EI.

While the concept of EI can be traced to literature of the early 1900s and to scientific references dating to the 1960s, the term first appeared in scholarly research in the form of Wayne Payne's 1985 doctoral thesis, *A study of emotion: Developing emotional intelligence.*

Study of the concept grew in the 1990s after John Mayer and Peter Salovey broke down EI into four skill areas or branches:

1. Perceiving emotion: an individual's ability to accurately recognize and identify emotion in self and others.
2. Using emotion in thinking: an individual's ability to use emotion to influence or facilitate thought, which involves knowing when to include and exclude emotions.
3. Understanding emotion: an individual's ability to label, categorize, and describe emotions, then associate them with socially appropriate actions.
4. Managing emotion: an individual's ability to regulate emotions to achieve goals [4].

EI gained widespread popularity outside academia in 1995 with the book entitled *Emotional Intelligence: Why It Can Matter More Than IQ*, by Daniel Goleman [2]. This book expanded the original EI definition to include 25 characteristics, which some researchers claim overstated the power of EI and eroded the concept because those characteristics included personality traits as well as emotions. Since then, EI theory has been applied to several fields, including business management and education [3]. Goleman suggests that individuals are born with a general emotional intelligence that determines their potential for learning emotional competencies. Similar to the four-branch model, Daniel Goleman has defined five emotional levels:

1. Self-awareness: Recognition of an emotion, comprehension of how functioning is affected, which leads to decision-making.
2. Managing emotions: The ability to use strategies to manage emotions and to change to a more desirable emotion as necessary.
3. Motivating oneself: The driving force to act in order to manage emotions. Persons high in this area tend to be more productive and less impulsive.
4. Recognition of emotions in others: A skill necessary to read another's emotions in order to express appropriate responses such as empathy.
5. Handling relationships: Responding in appropriate ways to affirm another's feelings. Involves the ability to inspire, influence, and develop others while managing conflict.

How EI is Measured

The first assessment tool used to measure *verbal* emotional expressiveness was the Beth Israel Hospital Psychosomatic Questionnaire, which asked patients to react to emotional scenarios by answering open-ended questions. The test was used to diagnose patients with *alexithymia,* a

condition characterized by the failure to recognize and verbally express emotions. Other scales that have been developed based on this model include: Schalling-Sifneros Personality Scale, Gottscalk-Gleser system, and the Minnesota Multiphasic Personality Inventory, State and Trait Meta-Mood Scales, and the Toronto Alexithymia Scale. One of the criticisms of all the scales is that they focus exclusively on measurement of negative emotion rather than being inclusive of both negative and positive emotions [2].

Assessment of *nonverbal* emotional expression has taken the form of the Affective Communication Test, the Affect Sensitivity test, the Communication of Affect Receiving Ability Test (CARAT), the Profile of Nonverbal Sensitivity (PONS), the Diagnostic Analysis of Nonverbal Accuracy Scales (DANVA and DANVA-2), and the Japanese and Caucasian Brief Affect Recognition test (JACBART). Criticism of these tests includes the fact that they yield results that cannot be correlated consistently. As such, critics suggest that they may not be testing the same underlying skills.

Bar-On believed that the level of one's emotional intelligence correlates with his/her level of success in areas such as academics, environmental demands, and problem solving abilities and with proper training it could be improved upon. Additionally, he developed one of the first reliable self-reports, the Emotion Quotient Inventory (EQ-i) to measure emotional intelligence.

The Mayer-Salovey-Caruso Emotional Intelligence tests (MSCEITs) appear to be the most recent standard for assessment. They measure EI by directly relating assessment to four branches: a person's capacity to identify emotions in others, to use emotions to facilitate thought, to understand emotional meanings, and to know how to manage emotions [4].

Challenges to EI Theory

Initially there was support for EI as being an addition to Gardner's Multiple Intelligences, which classify human potential in children. Specifically, Gardner proposed that interpersonal and intrapersonal intelligences reflected an individual's ability to understand the feelings and emotions of oneself and others. However, ongoing research suggests that emotion may be more accurately labeled as a skill.

While emotions naturally seem to be a primary driver of human evolution, some educational researchers dispute that it is the best predictor of success in life due to lack of concrete, correlated scientific evidence [1].

Relevance to Childhood Development

For Students

Overall, emotional intelligence represents an ability to validly reason with emotions and to use emotions to enhance thought, which can significantly impact a child's development. Proponents of emotional intelligence feel that unlike IQ, EI can be taught and, therefore, can have a greater impact on levels of success. Studies show that implementing emotional intelligence curriculums in school not only enhance a child's emotional intelligence, but also increases academic abilities. They also suggest that students who demonstrate healthy EI adjust, integrate, and regulate their emotions as they strive for goals throughout their development. They realize that emotions - negative or positive - are temporary states that lead to better understanding and growth. Emotionally intelligent students better prioritize their thinking and are more equipped to solve problems with creativity and flexibility. On an individual level, EI has also been linked to work performance as well as the ability to communicate effectively, build meaningful relationships, and make moral decisions. Interest levels are heightened when there is a social or emotional connection to something. They are drawn to careers that involve social interactions, like teaching and counseling.

The proponent's claims are supported by the following research:

- EI is a consistent predictor of social and academic success in children.
- There is a positive correlation between identification of nonverbal emotion and cognitive ability assessed by students' standardized tests [3].
- Individuals with high EI tend to exhibit lower engagement in problem behaviors and avoid self-destructive, negative behaviors, such as smoking, excessive drinking, drug abuse, and violent episodes involving others.

For Teacher Utilization

EI proponents dispute the historical belief that rational logic is more important than feelings or emotions. While early philosophers posited that emotions make people weak or vulnerable, proponents of EI argue that instead, it allows people to better cope with change and conflict. They propose that healthy emotional intelligence begins with teachers, who should recognize, understand, and validate the importance of emotions and feelings. In doing so, they can create a positive learning environment that may better equip students to deal with decision-

making regarding such real problems as substance abuse and violence.

Advocates have found success in implementing a social and emotional learning curriculum (SEL). SEL aids students in understanding emotions and becoming problem solvers. SEL also looks at social and self-awareness, which are related to Gardner's inter- and intra- intelligences. One way teachers implement a SEL curriculum is through the use of literature. Students can easily relate their lives to that of the characters in different stories.

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Emotional Lability

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Synonyms

Affect lability; Emotional incontinence; Pathologic emotionality; Pseudobulbar affect (PBA)

Definition

Emotional lability is a disorder characterized by involuntary emotional displays of mood that are overly frequent and excessive, often the result of various neuropathologies.

Description

Historically, emotional lability has been difficult to categorize as a distinct psychological disorder. The term is often used interchangeably with pseudobulbar affect (PBA), although PBA more generally refers to excessive emotions that may or may not correspond with the underlying mood. PBA also encompasses a broader range of emotions including anger and irritability, while emotional lability generally refers only to emotions characterized by laughing and crying.

Although the definitive cause is still unknown, most hypotheses point to the loss of voluntary, cortical inhibition over brainstem centers that produce the facio-respiratory functions associated with laughing and crying as the anatomical basis for this syndrome. This loss of cerebral control results in a dissociation of affective displays from the subjectively experienced emotional states.

A more specific neurological explanation cites bilateral corticobulbar motor track lesions as the main cause. The lesions uncouple cranial motor nerve nuclei and supranuclear integrative centers from their cortical control. Almost all cases of emotional lability involve neurological systems with motor functions, and associated lesions are always multifocal or bilateral. The most common neuroanatomic structures involved include the internal capsules, the substantia nigra, the cerebral peduncles, and the pyramidal tracts. The lesions are most commonly correlated with multiple sclerosis, Alzheimer's disease, stroke, and traumatic brain injury.

The excessive emotional displays associated with the disorder can have a profoundly negative social impact. These displays often impair social and occupational functioning, lead to social phobias and withdrawal, and eventually become socially disabling.

To date, the inability to locate a definite cause for the disorder has impeded direction and treatment. Three scales measuring emotional lability have been frequently used and statistically validated: the Pathological Laughing and Crying Scale (PLACS), the Center for Neurologic Study-Lability Scale (CNS-LS), and the Emotional Lability Questionnaire (ELC). Attempts to reduce the symptoms of the disease often include anti-depressants and dopaminergic agents, with individual case reports suggesting some improvement in symptoms. However, no neuropharmaceutical treatment has conclusively shown to be effective in large, controlled trials.

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Emotional Self-Control

►Emotional Self-Regulation

Emotional Self-Efficacy

►Emotional Intelligence

Emotional Self-Monitoring

►Emotional Self-Regulation

Emotional Self-Regulation

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Synonyms

Emotional self-control; Emotional self-monitoring; Regulation of emotion

Definition

Emotional self-regulation refers to the complex process of initiating, inhibiting, and modulating the conscious aspects of emotion to effectively achieve one's goals. Although this concept, at the most basic level, refers to controlling one's feelings, theory and research on emotional self-regulation have addressed various cognitions, physiological processes, and behavioral outcomes associated with individual differences in the capacity to effectively manage one's emotions.

Description

Although the ability to regulate one's emotions emerges at an early age and evolves throughout the lifespan, significant differences have been found in individuals' tendencies to control their emotions. The following brief review describes some of the factors that contribute to the development of, and individual differences in, emotional self-regulation during childhood and beyond.

Age-Related Differences

Young infants rely on others to regulate their emotions. For example, a mother may closely monitor an infant's exposure to potentially stimulating events and may withdraw him or her from situations that are over-arousing and stress-inducing. Furthermore, when infants' facial expressions or cries connote distress, frustration, or fear, parents and other caregivers frequently regulate infants' emotions by holding, soothing, and/or distracting them [4].

The capacity for emotional self-regulation slowly emerges during infancy and early childhood, and the individual's coping skills tend to become more effective and appropriate to the specific situation. Infants and toddlers show early signs of emotional self-regulation in distressing situations by averting their gaze, self-soothing (e.g., sucking a thumb), or clinging tightly to an object or caregiver that provides a sense of security [2]. During early childhood, children continue to develop and improve their ability to inhibit, minimize, or intensify the duration of emotional reactions, and this ability increases considerably with the capacity to use language. In comparison with their younger counterparts, older children are more likely to have internalized the coping strategies suggested by their caregivers. Furthermore, older children are better able to use language to express their desires and concerns to caregivers who can offer them assistance in regulating their emotions [3].

The child's developing language and cognitive abilities are associated with the selection of more mature, appropriate, and effective strategies for controlling emotions. For example, whereas younger children tend to regulate their emotions primarily by using behavioral strategies (e.g., engaging in a distracting activity), older children are also able to use cognitive strategies (e.g., adjusting goals, thinking positively, engaging in mental distractions) to adjust to challenging situations. Accompanying the increase in available coping strategies, children develop a greater awareness that the appropriateness of a particular approach for regulating their emotions is influenced by social norms, their specific goals, as well as the nature of the specific situation that confronts them [1].

Biological Influences

Age-related changes in emotion self-regulation are at least partly due to the increasing maturation of the neurological systems, including the portion of the frontal lobes that are essential to managing attention and inhibiting undesirable thoughts and behaviors. Specifically, the functioning of the prefrontal cortex contributes to the capacity for emotion regulation, as it responds to the limbic system and parts of the brain such as the amygdala where powerful emotions (e.g., fear, anxiety)

are formed and processed [5]. Moreover, some theorists and researchers contend that the neurological development associated with emotional self-regulation is experience dependent, such that children's unique experiences serve to establish the neural connections that contribute to the ability to control emotions. Although research on neurological development and the monitoring of emotions is quite limited, the interaction of neurological maturation and the child's unique experiences appears to play an important role in developmental gains and individual differences in the ability to self-regulate emotions.

Socialization Influences

As suggested by the earlier discussion of age-related differences in emotional self-regulation, socialization experiences contribute to individual differences in children's tendencies to control their emotions. Early on, some parents regulate their infant's emotional states by reading their emotional signals, providing appropriate stimulation, modulating levels of arousal, and reciprocating and reinforcing appropriate expressive reactions [2]. Later, these parents may use emotion coaching to encourage the development of emotional self-regulation. A parent who uses emotion coaching labels and explains emotions, uses induction to explain why the child's emotions in a particular setting are appropriate or inappropriate, and reinforces the child for proper emotional responses. In contrast, some parents may inadvertently practice emotion dismissing wherein they deny or ignore their child's displays of emotion, and fail to adequately assist their child in learning to express his or her feelings in a socially acceptable manner.

Emotional Dysregulation

Emotional dysregulation refers to the inability to adequately initiate, inhibit, or modulate emotions. Failure to adaptively regulate one's emotions, especially those that are intense and negative, may lead to behaviors that are unacceptable and antisocial. For example, some preschool victims of physical abuse have been found to imitate their parents' lack of emotional and behavioral control by responding to crying peers with personal distress and aggression rather than empathy and helping.

Research has suggested that several forms of psychopathology may be associated with the dysregulation of emotion in children [3]. For example, the externalizing problems (e.g., conduct disorder) and internalizing problems (e.g., extreme shyness and withdrawal) of some children may be associated with affective instability and the failure to effectively regulate intense emotions. Furthermore, the failure to learn to adequately self-regulate emotions in childhood may evolve into broader expressions of emotional dysregulation and psychopathology during the adult years (e.g., generalized anxiety disorder). Consequently, individual differences in the ability to properly regulate emotions during childhood may serve as an important precursor of individual differences in emotional and behavioral adjustment throughout the lifespan.

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Emotions

▶Affect

Empathizing

▶Mindblindness

Empathy

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Synonyms

Compassion; Sympathy; Understanding

Definition

Empathy is when a person cognitively places him/herself emotionally into the experience of another person by

understanding the persons view of the world and imagining the same feelings.

Description

Empathy is what makes humans different than other organisms. Showing compassion and empathy is not only being in someone else's shoes. It is the principle of understanding someone else's situation, which requires interpreting an individual's basic beliefs. This includes the ability of identifications of assumptions, and grasping the cultural, social, historical background of another's feelings or difficulties. Having empathy is internalizing with sympathy and compassion in true understanding.

Relevance to Childhood Development

As children increase empathy, they can become more caring about others. Without empathy, conflict resolution is difficult and a child may become selfish and uncaring. Empathy is something that can be mirrored to children. Teaching a child by example as well as helping the child to be compassionate by doing for others in small ways. A parent and child relationship can be the template for teaching for humanity the concepts of generosity and empathy.

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Emulation

►Observational Learning

Encephalitis

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Definition

Encephalitis is a neurodegenerative disorder associated with physical, cognitive, behavioral, and social impairments. The disease can originate from virus or bacteria. Arboviruses carried by mosquitoes, mites, and ticks are responsible for the most common forms of viral encephalitis [6]. The disease can be fatal, especially in infants and children.

Description

Encephalitis begins with an infection that leads to inflammation of the *parenchyma,* or neural tissue of the brain [9, 13]. Bacterial encephalitis occurs secondary to an injury inflicted on the brain by penetration, fracture, or opening of the skull. Bacteria infect the cerebral tissue through contact and encephalitis subsequently develops [1]. Viral encephalitis is more common than bacterial encephalitis and can present as two differently originated diseases: primary infection or secondary, *postinfection.* Arboviruses that cause encephalitis are contracted through bites from mosquitoes, tics, and mites. There are about 500 such infectious arboviruses. Most infections occur between June and September ([6, 11]). Eastern equine encephalitis, Western equine encephalitis, St. Louis encephalitis, and California encephalitis are the most prevalent arboviral encephalitis infections in the United States [6]. California encephalitis is a complex of related viruses, including the LaCrosse virus that is prevalent in the Midwest and causes encephalitis in children [4]. Mumps, measles, and influenza are examples of diseases that could lead to a secondary postinfection [6]. There have been a few cases of postvaccinal encephalitis occurring in infants, but it is extremely rare [4].

After the virus has entered the body, viral transport can occur through blood or nerve cells [3]. In neural pathways, the virus kills the host cells after entering the cell. However, the cell death occurs differently depending on the type of encephalitis. In lysis, or *necrosis*, the cell membrane ruptures and cell death occur faster than in apoptosis, a programmed cell death that leaves the actual cell membrane intact until late stages of the infection [3]. Shortly after infection, inflammatory cells accumulate at the infection site and enhanced lysosomal activity becomes apparent. The immune system attacks the infected site. Extensive numbers of lymphocytes and plasma cells in the area of inflammation infiltrate the inflamed connective tissue. This inflammation is characteristic of encephalitis [3]. The rate at which inflammation progresses of depends on the type of encephalitis present. Herpes simplex virus type 1 produces an acute inflammation that progresses rapidly, causing severe symptoms that include olfactory or gustatory hallucinations, memory loss, and disordered behavior [8]. Subacute sclerosing panencephalitis (SSPE) following the measles or measles

vaccination is a postinfectious encephalitis. It proceeds much more slowly, gradually causing chronic inflammation and atrophy [1, 3]. The cerebral spinal fluid and cerebral spinal fluid glucose appear normal in encephalitis, but cerebral spinal fluid proteins, white blood cell levels, and intracerebral pressure are elevated [9, 11]. Bacterial encephalitis appears to affect the parenchyma focally while viral encephalitis has a more diffuse impact [1].

There are milder versions of encephalitis that can go unnoticed in a patient who recovers without any greater impairment from the disease. However, encephalitis can also become a very serious and in many cases fatal disease that leaves lifelong debilitating symptoms for the patient. Encephalitis may present with a variety of symptoms that can include headache, fever, drowsiness, sore throat, bone pain, delirium, muscle pain, myopathy, tremors, vomiting, photophobia, vertigo, tinnitus, paraaesthesia, and nucal rigidity [6, 8, 9]. The symptoms are not necessarily consistent across the different types of encephalitis and this presents difficulty when diagnosing the disease. Patients with HIV-1 encephalitis tend to show apathy, depression, social withdrawal, and hyperreflexia. In herpes simplex virus encephalitis, the patient can have headache, fever, and delirium, but may also present with amnesia and Klüver-Bucy syndrome [9]. SSPE is characterized by ataxia, tremors, spastic paresis, and slow, sinuous movements [12]. Edema and congestion are early symptoms of the eastern equine encephalitis; later symptoms include stupor, coma, convulsions, and high fever. After the acute phase of encephalitis, coma can occur for several days [11].

It is important to consider four aspects when diagnosing encephalitis: (1) how the viruses entered, (2) how the virus chooses its host cell, (3) progression, and (4) how the response of the immune system affects overall pathology. The first two aspects are especially important when distinguishing the specific type of encephalitis present [3]. Questions need to be asked regarding travel history, animal exposure, community epidemics, immunization history, and vector exposure [11]. Neuropsychological assessment of encephalitis is necessary to determine the degree of cerebral involvement. If a chronic disease is present, the influence of that disease on neuropsychological or cognitive function should be considered. Postinfectious encephalitis tends to produce focal cerebral dysfunction, as do bacterial abscesses. A cerebral abscess can also cause more generalized pathology beyond the location of focal involvement [1]. Differential diagnoses of encephalitis involves ruling out alternative causes such as acute cerebellar ataxia, meningitis, acute disseminated encephalomyelitis, and Gullain-Barre syndrome, and collagen vascular disease. Symptoms from drug ingestion can also be mistaken for early stages of encephalitis, especially recreational drugs such as methamphetamine and cocaine [11].

Most types of encephalitis cause diffuse damage. The damage creates widespread neuropsychological dysfunction, making it difficult to determine the origin. Diagnosis is usually made using a lumbar tap, electroencephalography (EEG), magnetic resonance imaging (MRI), or computed tomography (CT). When considering herpes simplex virus, a brain biopsy may be carried out [6]. A history of respiratory illness within the past 2–3 weeks may be an important indicator of mycoplasma encephalitis [5]. Different types of encephalitis are more prevalent in different stages of life. Although a specific etiology of encephalitis should not be excluded based on the patient's age in most cases, it is an important factor to consider when excluding differential diagnosis: St. Louis encephalitis is more common in adults than in children [8], SSPE occurs mostly in children [9], Herpes simplex virus I, Herpes simplex virus II, and Eastern equine encephalitis is most prevalent in infants [8]. Herpes simplex encephalitis occurs in 12% of children between ages 6 months and 10 years of age [8].

Symptoms of encephalitis can occur after 24 h up to 1 week postinfection depending on whether the onset of the disease is acute or insidious. If not treated immediately, the overall mortality rate is 50–70%. Mortality rates are particularly high in young children [6]. For example, 68% of children under the age of 10 are affected by Eastern equine encephalitis do not survive the disease [8] compared to the overall mortality rate of 30% [6]. Recovery from encephalitis is otherwise probable and follow-up neurological assessments should be considered after recovery [1]. Postencephalitis, most patients have severe sequelae such as motor impairments, deafness, seizures, mental retardation, hyperkinesias, developmental retardation, and shortened attention span [8]. Memory impairment, similar to that caused by bilateral temporal lobe damage, may be present, but is not always be recognized in postencephalitis assessments [14].

Initially, the patient may need intensive care hospitalization. There are few efficient treatments for viral encephalitis [11], but it is important to monitor for adequate fluid and electrolyte intake, continuously check vital signs, such as blood pressure and respiration [7], intracranial pressure [6] and treat seizures occurring in encephalitis aggressively with anticonvulsants [2]. Three or more seizures, focal neurological findings, high cerebral spinal fluid protein, delayed presentation, and longer coma is indicative of poorer prognosis [11, 12]. Pharmacological treatment is

not available for most viral encephalitis, but there are exceptions among the herpes viruses [10]. Herpes simplex encephalitis is effectively treated with the antiviral acyclovir, which reduces mortality rates to 20% [12]. Bacterial encephalitis is effectively treated with antibiotics [11].

Relevance to Childhood Development

Viruses can be transmitted during pregnancy. Rubella virus can affect the fetus' central nervous system during the first trimester. Poliovirus, western equine encephalitis, West Nile virus, and herpes virus can enter the placenta during the last days of pregnancy, although that is rare [1, 15]. If the onset of the encephalitis is in infancy, the disease can produce neurological impairments that are extremely resistant to treatment [1]. Children affected by encephalitis in infancy have also been shown to have greater developmental impairments than children who were affected during, or after, preschool [13].

Children suffering from encephalitis may require therapy in their areas of deficits. These services may include speech therapy, special education, and physical modifications to the environment [6]. Preventive measures that can reduce the incidence of encephalitis include immunizations, use of mosquito repellant, and the reduction of breeding areas for tics and mosquitos. Vaccines against Japanese encephalitis, tick-bourne encephalitis, Eastern equine encephalitis, Western equine encephalitis, and Venzuelan equine encephalitis exist [11]. It is also important to provide preventive information to teachers and others that come in contact with children who may have had the measles, mumps, or influenza in order to recognize subtle symptoms of postinfectious encephalitis [6].

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Encopresis

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Synonyms

Fecal soiling; Primary encopresis; Secondary encopresis; Soiling

Definition

Encopresis is characterized by the involuntary, and in some cases voluntary, passage of fecal matter in inappropriate places. Encopresis most commonly takes two forms, primary encopresis and secondary encopresis. Primary encopresis involves unintentional soling on the part of children over the age of four who have never attained autonomy in voiding (e.g., who are not toilet trained). Conversely, secondary encopresis pertains to fecal soiling among children who have attained autonomy in voiding (e.g., have been successfully toilet trained).

Description

According to Philiohi [12], the term encopresis originates from the Greek word *kopros*, which is used to refer to stool. Encopresis is characterized by the involuntary, and in some cases voluntary, passage of fecal matter in inappropriate places. This elimination disorder most commonly

takes two forms, primary encopresis and secondary encopresis. Primary encopresis involves unintentional soling on the part of children over the age of four who have never attained autonomy in voiding (e.g., who are not toilet trained). Conversely, secondary encopresis pertains to fecal soiling among children who have attained autonomy in voiding (e.g., have been successfully toilet trained). Secondary encopresis may be further categorized as two distinct types: retentive versus non-retentive. Retentive encopresis is described as fecal soiling with constipation and overflow incontinence, while non-retentive encopresis pertains to soling without constipation and overflow incontinence (American Psychiatric Association, 2000). Most commonly, children who present with retentive encopresis evidence "loose stools" and discharge in their undergarments. The elimination of whole stools of normal constitution into the undergarments is most often observed in cases of non-retentive encopresis, with the "escape" of stool from clothing into the child's surroundings following elimination frequently reported.

Medical and psychological diagnosis of encopresis is not considered rare and is somewhat common in the general population. Recent estimates of incidence indicate that between 1 and 2% of children between the ages of 4 and 11 are diagnosed with encopresis, with higher rates (5–8%) found among children treated for psychological concerns on both an inpatient and outpatient basis [7, 12]. It has been suggested that 24% of cases seen by pediatric gastroenterologists involve fecal soiling [11]. Diagnosis of encopresis is more prevalent among boys than girls, and typically occurs between 1 and 5 years after the initial occurrence of elimination difficulty. Identification of encopresis is unusual among youth over the age of 16, although some cases have been reported.

Etiology and Diagnosis

The etiology of encopresis encompasses both medical and psychological domains and is contingent upon presenting concerns and behavior. Unlike many disorders, the underlying cause of encopresis in some patients may not be identified, particularly in non-retentive cases where the elimination difficulty is conceptualized as having psychological underpinnings, or in cases where common medical causes for the disorder, such as chronic constipation, have been ruled out. Most often, encopresis results from physiological as opposed to psychological difficulties, with approximately 95% of reported cases stemming from constipation. Such findings indicate that retentive encopresis is more common than the non-retentive subtype [4]. Regardless of the etiology, encopresis may be diagnosed in both medical and psychological arenas. Medical causes of the disorder should be first investigated and ruled out by physicians prior to psychologist referral; however, research supporting distinct and consistently identifiable psychological underpinnings is scant. In the absence of a discernable medical cause, potential psychological causes may be investigated, with the DSM-IV TR diagnosis for encopresis reflective of both medical and psychological etiologies.

Within the medical arena, chronic constipation has been determined to be primary cause of most cases of encopresis, and in young children, is often caused by painful defecation experiences; 63% of youth diagnosed with encopresis have reported painful bowel movements [11]. When constipated, a child's rectum may become distended as a result of hard feces, which in turn leads to painful defecation, potentially causing the child to refrain from toileting activities. Efforts to retain feces (withholding) cause temporary expansion of the anus, however, prolonged retention and limited room for expansion results in the involuntary propulsion of fecal matter. Chronic and severe retention of feces as a result of painful defecation experiences can, over time, lead to fecal impaction, which is described as the impaction of feces into the colon rectum as a result of the child's efforts to abstain from defecating [4, 7, 12]. Psychogenic megacolon is a term used to describe instances where fecal withholding incites the constipation itself, resulting in painful defecation, impaction, and finally, encopresis and leakage. Often, fecal impaction leading to encopresis may be misdiagnosed as diarrhea, as watery leakage (overflow incontinence) resulting from the impaction may be found in the child's undergarments as opposed to solid stools. Impairments in anorectal functioning as a result of malformation correction, poor muscle tone, as well as sphincter muscle contraction (as opposed to relaxation) during bowel movements can each lead to constipation, but are uncommon [12].

Psychological diagnosis of encopresis, as per the DSM-IV TR [1], requires the presence of each of the following: "1) repeated passage of feces into inappropriate places whether involuntary or intentional; 2) at least one such event a month for at least 3 months; 3) chronological age is at least 4 years; and 4) the behavior is not due exclusively to the direct physiological effects of a substance or general medical condition except through mechanisms involving constipation" (p. 116). Murphy and Carney [10], as well as Zarnegar [14] highlight the differentiation that exists within the DSM-IV definition discerning between retentive and non-retentive types. This DSM-IV differentiation echoes aforementioned etiologies of the disorder, with acts of uncontrolled defecation after toilet training due to

constipation coded 787.6 (with constipation and overflow soiling) and those unrelated to constipation and potentially linked to oppositional defiant disorder or conduct disorder coded 307.7 (without constipation and overflow soiling). However, despite the classification schema espoused by the DSM-IV, the tendency among many medical practitioners, as opposed to mental health practitioners, is to classify any form of soiling after toilet training as encopresis regardless of the etiology. When differentially diagnosing encopresis without constipation, Zarnegar [14] encourages consideration of the following: Hirschprung disease, neurological disorders, hyperthyroidism, hypercalcemia, diseases of the smooth muscle, anal fissures, fecal soiling as a depressive symptom, ADHD as a concomitant factor, and childhood psychosis (if non-accidental smearing occurs).

Encopresis as a Result of Mental Health Concerns

The field of psychology has long held numerous assumptions regarding the psychological etiology of encopresis not caused by physiological abnormalities. However, despite the wealth of hypotheses regarding psychological underpinnings of encopresis, few have been supported in the literature. In essence, despite years of assertions that encopresis stems from mental health concerns, relatively few studies have indicated that such is the case; fewer have been able to directly link mental health disruptions with resultant encopresis. Often, when no discernable medical cause can be found for encopresis, psychological underpinnings are considered on default.

Principal among purported psychological etiologies is the long held notion that encopresis results from sexual abuse. While indeed those who have been sexually abused are at increased risk for constipation and fecal impaction, children who have been sexually abused have not been found to demonstrate increased risk for encopresis far beyond same-age peers. In a study of children in a residential treatment center, history of sexual abuse was found to be nearly as common among children with encopresis as those without encopresis [9]. However, histories of sexual abuse were higher among youth who engaged in the sexual assault of others. Certainly, without a substantive body of literature supporting or refuting the link between sexual abuse and encopresis, practitioners should exercise due caution when making any such inference.

The co-existence of encopresis with other behavioral or emotional disturbances is well documented. However, despite comorbidity between encopresis and mental health concerns, no definitive causal link has been established between psychological distress and the onset of encopresis [5, 6, 8]. Any differences between the emotional and behavioral functioning of children with encopresis and matched controls has been found to be eliminated following treatment for encopresis [13], and no longitudinal differences in mental health functioning between children with and without encopresis have been found to exist [7]. Such findings suggest that encopresis may account for mental health challenges as opposed to disruptions in psychological functioning causing encopresis, with some noted exceptions including toilet phobia. Some have asserted that sudden and extreme trauma, loss, or separation can lead to lack of bowel control [14]. General psychological concerns frequently found to exist co-morbidly with encopresis include depression, anxiety, negative self image, a tumultuous relationship with parents, perceived lack of control, acting out behavior, diagnosis of ADHD, oppositional defiant disorder, conduct disorder, and psychosis, among others.

Treatment

Treatment of encopresis is wholly contingent upon the identified etiology and presenting concerns of the individual child. In cases where a medical origin has been identified, such as constipation, physicians employ medical treatment options combined with behavior management techniques. Conversely, in cases with no discernable medical cause, behavioral interventions are typically utilized. Regardless of etiology, multimodal intervention methods including medical, educational, and behavioral approaches are recommended. Given the lack of causative data regarding mental health challenges and encopresis, interventions or psychotherapy targeted toward treating emotional or behavioral difficulties alone in hopes of remediating encopresis is not advised. Certainly, in cases where a child presents with extreme psychological needs or distress, such issues should be addressed prior to remediating comorbid encopresis. Treatment and recovery from encopresis, regardless of modality or combinations of interventions used, may span 3–9 months, with longer treatment durations more common. Advising parents, teachers, and other invested professionals of the long treatment and recovery duration is of utmost importance, as many caretakers believe that treatment is not working when symptoms do not quickly dissipate.

Medical Approaches

Medical treatment for encopresis stemming from constipation includes a variety of approaches typically commencing with a complete bowel evacuation. In cases where fecal impaction has occurred, medical disimpaction under the care of a physician should be conducted prior to

the utilization of any laxatives at home. Most often, laxatives, enemas, and suppositories are prescribed to ensure that stool is removed from the rectum and lower colon in cases with and without fecal impaction [12]. Once fully cleansed, routine maintenance therapy consisting of laxatives, stimulants, and lubricants should be employed to ensure regular and soft bowel movements. Over time and with proper management, the child's rectal caliber will return to normal, and regular defecation patterns will resume [12]. Though examination of a child's diet is a positive endeavor when working with all children, diet alteration in children with encopresis has not been found to successfully remediate the disorder. Dietary changes, particularly sudden increases in fiber intake, should not be employed except under direction of a physician, and in fact, may increase symptoms of encopresis [12].

Education

Frequently, children with encopresis suffer from a vast array of social and emotional sequelae stemming from fecal soiling accidents, and are often blamed for their toileting difficulties. Parents and children alike have been found to initially deny the existence of long term soling difficulty, believing that the condition is something temporary that the child will eventually outgrow; longitudinal research regarding encopresis yielded the finding that 46–53% of children with encopresis deny the fact that they have toileting difficulties [3]. A tendency to shame children with encopresis also exists along side of parental belief patterns related to emotional and personality characteristics as the cause of toileting difficulty. Such belief patterns tend to be widely prevalent, as parents have been found to routinely identify laziness, carelessness, and emotional problems as primary contributing factors to their child's encopresis [3]. Given the plethora of misinformation and misunderstanding that surrounds diagnosis of encopresis, parent and child education regarding the disorder, causes, and treatment options should be a key first step following initial diagnosis. Friman et al. [4] suggest that direct instruction regarding the elements of successful and disordered bowel function, the impact of treatment mechanisms on the child and bowels, as well as clear and direct discussions regarding inappropriate blaming of the child for retentive elimination difficulties, are critical aspects of education for retentive types of encopresis. Likewise, agreement to cease punishment for bowel related accidents, regardless of whether they are perceived to be "unintentional" or "intentional," is strongly advised (p. 266). Parental involvement in intervention development and medical planning is critical to success, and will aide in increasing treatment integrity, including medication management and adherence, domains that are frequently mismanaged and lead to relapse.

Behavior Management

Research has found that behavior management combined with medical treatment is more effective in treating retentive encopresis than medication alone [2]. Consequently, a multimodal behavior management plan for encopresis is recommended in addition to medication; those in treatment for non-retentive encopresis benefit from behavior management alone once medical origin has been ruled out. Principal among behavior management techniques in treating encopresis is the establishment of a toileting schedule [4, 12]. Establishing a toileting schedule where the child is required to visit the bathroom two to three times per day for 5–10 min should be required, and should ideally occur 20–30 min following meals. Although some do not believe that scheduled toilet times should occur during the school day, depending upon the severity of encopresis, such arrangements may be necessary. At home and at school, children should been given privacy in the bathroom; use of a nurse's bathroom or other private one stall bathroom is strongly recommended at school and special permission should be obtained to use such facilities. For small children whose feet may not touch the floor while seated on the toilet, use of a small stool to level their feet will facilitate posture for appropriate bowel movements [4]. Charting of the child's bowel movements, accidents, as well the consistency of feces passed both accidentally and intentionally should be maintained and provide insight into needs for plan refinement and successes. Routine checking of underwear for soling is a helpful addition to such plans and facilitates behavior management. In cases where the child has soiled, a plan for child involvement in clean up should be established. Positive reinforcement, including rewards and praise for accident free periods of time, are a strong addition to toileting plans, and can become part of the child's charting and progress monitoring plan.

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Enculturation

►Cultural Transmission

Endophenotype

Endophenotype is a genetic/behavioral biomarker demonstrating differences in outcome for similar genetic variables based upon the pressure of environmental phenomena. The concept was developed to efficiently divide behavioral symptoms into stable phenotypes with clear genetic connections and was originally borrowed from insect biology. A number of related terms are often used as well to reflect similar meaning but not stressing genetic connection including intermediate phenotype, biological marker, subclinical trait, vulnerability marker and cognitive marker. In particular, for complex behavioral and psychiatric conditions, endophenotypes for similar genes vary significantly based upon experience.

Endorphins

The term endorphin consists of two parts: Endo and orphin. These are short forms for the words endogenous and morphine. This is intended to mean "morphine like substance originating from within the body". Endorphins are endogenous opioid polypeptide compounds. They are produced by the pituitary gland and the hypothalamus particularly during exercise, excitement, pain, orgasm or even consumption of spicy foods. They resemble opiates in their ability to produce analgesia and a feeling of health. Endorphins are suggested to work as natural pain relievers.

End-Stage Disease

►Terminal Illness

Enlightenment

►Wisdom

Enterocolitis

►Acquired Autism

Enuresis

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Synonyms

Bed-wetting; Urinary incontinence (term most commonly used when referring to adults)

Definition

Enuresis is the repeated voiding of urine into the bed (nocturnal enuresis) or clothes (diurnal enuresis). It is not diagnosed until a child reaches a chronological or developmental equivalent age of 5 years.

Description

The word "enuresis" is derived from the Greek word "enourein" which literally means to void urine. Specifically, it is used to describe a condition wherein bedwetting is repeated at least two times per week for at least 3 consecutive months or involves clinically significant emotional distress, social or academic impairment, or impairs other significant areas of functioning. Enuresis is said to be occurring as long as the voiding of urine is not due to the intake and resulting physiological side effects of a substance, a general medical condition such as urinary tract/bladder infection, diabetes, or neurological or urological disorders. The prevalence of enuresis is the highest in children between the ages of 5 and 7 years and then tends to drop off sharply. It is more common in boys (7% at age 5 years) than in girls (3% at age 5 years). Enuresis tends to be a self-limited disorder as it often disappears on its own as the child, and their nervous system, matures. However, enuresis can spontaneously reoccur, most commonly after the age of 7 years, or again after the age of 12 years.

Enuresis can be further described in several different ways. Primary enuresis occurs when the individual never actually obtains control of the urinary sphincter muscle, and therefore, the bladder. This skill is referred to as urinary continence. Urinary continence is usually said to have occurred when the individual exhibits urinary control for a period of 6 months to 1 year. Secondary enuresis is when symptoms of bedwetting occur after urinary continence has been exhibited for at least 6 months to1 year. Nocturnal enuresis is far more common than diurnal enuresis. Although it is rare, some individuals may have both nocturnal and diurnal enuresis.

Enuresis may also be voluntary (intentional) or involuntary (unintentional), with the majority of cases being involuntary. Involuntary enuresis may be either primary or secondary. Although no specific genetic link has been found, rates of enuresis are higher for children for whom one parent was enuretic and even higher if both parents were enuretic. Involuntary enuresis is a result of failing to learn to control the urinary reflex. Voluntary enuresis is almost always a form of secondary enuresis and may be related to other psychological/psychiatric symptoms.

Treatment of enuresis generally fall under two categories: behavioral and pharmacological. Of the two, behavioral treatments have a higher success rate, lower recidivism rate, and higher social acceptability due to the lack of expense relative to the cost of medications. Behavioral treatments generally consist of at least one or a combination of the following interventions. One of the most effective options is to use a urine alarm which has one end attached to the child's underwear and the other end to an unobtrusive part of the outer clothing or wrist. The urine alarm has a moisture detection mechanism which sets off the alarm and alerts or awakens the child. Other techniques include reinforcement for dry nights (or days). This is often implemented with a "star chart" where star stickers are placed on the chart for each dry time period. After a pre-established number of stars are achieved, the child receives a reward. In addition to these interventions, other "common sense" techniques are often used such as restricting fluid intake before bedtime, teaching urinary retention techniques, and waking the child up at night periodically to go to the bathroom. Although these techniques may be useful adjuncts to the urine alarm, they are unlikely to be successful in and of themselves. Psychopharmacological treatments typically consist of tricyclic anti-depressant medications such as imipramine, oxybutynin chloride (to help control bladder spasms), or desmopressin (an antidiuretic hormone). Although initially effective, return of enuresis symptoms is common after the medication is removed.

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Epicanthic Fold

An epicanthic, picanthal or epicanthus fold is a skin fold of the upper eyelid from the nasal bone to the inferior side of the eyebrow. It covers the inner core of the eye. It is a normal trait for a large percentage of humans. This lower fold of the upper eyelid gives the eyes of some east Asians an appearance which seems relatively narrower and almond shaped in comparison to most Caucasians and individuals from the sub-Saharan African desert. Their eyes seem wider due to a higher upper eyelid fold.

Epidemiology

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Synonyms

Community study

Definition

Epidemiology is the study of the frequency of a disorder and its distribution in various populations.

Description

The scope of epidemiology is wide and includes: establishing dimensions of morbidity and mortality; quantifying the risks of developing a disease; identifying and defining syndromes; describing the natural history of diseases; identifying factors which influence or predict clinical course; searching for causes of disorder and related disability; and evaluating methods of disease prevention and control [17]. As such, epidemiological studies should help to enhance our understanding of the causes, treatment, and natural history of psychiatric disorders.

The main advantage of epidemiological research using samples from the general population is the ability to produce findings of greater generalizability than studies of clinical samples. Data from clinical settings are generally not representative of individuals with psychiatric disorders because of the bias in service attendance through restrictions in evaluating, access, and selection processes in terms of help-seeking behaviour, symptoms, and chronicity [5]. Samples from the community and clinical settings may also differ in the risk factors, comorbidity, natural history, and response to treatment of their psychiatric disorders. An additional problem with using clinical samples is that children's referrals to clinical settings may partly be related to parental characteristics. Additionally, the finding that most children in the community with significant problems do not receive adequate help [5] underscore the importance of epidemiological studies.

Much progress has been obtained in epidemiological studies involving children and adolescents in recent years. This progress is strongly influenced by related developments in adult psychiatric epidemiology [19], including:

- Greater specificity of diagnostics of psychiatric disorders since the introduction of ninth edition of the *International Classification of Diseases* (ICD-9) and third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) that permits the operationalization of specific diagnostic decisions instead of broad, unspecific decision about "caseness."
- The development of reliable diagnostic assessment instruments such as the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule for Children which have been modelled after the instruments used in adult epidemiology. These instruments not only reduce the observer, information, and criteria variance when using less standardized diagnostic instruments, but they also allow comparison of results across studies.
- The application of adequate research designs by estimating the prevalence of psychiatric disorders in the general population, including the use of a lifetime approach in addition to several levels of cross-sectional diagnoses. These methods enable the determination of the occurrence, clustering and sequence of syndromes and disorders over the subject's life span. Such approaches, originally introduced and used in the Epidemiologic Catchment Area study and used in numerous adult epidemiological studies world wide, have been adopted in child epidemiologic studies.
- Systematic co-ordination of information taken from various informants, including parent, teacher, clinician, and child.

Despite the above developments, there are some inconsistencies and unresolved problems in interpreting existing data on the epidemiology and risk factors of psychiatric disorders. First, despite the use of comparable criteria, the threshold for defining a "case of psychiatric disorders" varies from one study to the other, including the number of symptoms [12], need for treatment, social impairment, or definition of caseness. Second, studies vary in the way in which they combine information from different sources (parents, teachers, and children) [7]. Third, the time frame covered ranges from current symptomatology to lifetime. Fourth, differences in the sampling frame.

Case Definition

The three approaches commonly used to define the "case" with psychiatric disorders include the assignment of a diagnosis to the respondents by a clinician (i.e., the clinical approach); the use of a checklist or a questionnaire to assess symptoms or syndromes of psychiatric disorders (i.e., the dimensional approach); and the administration of a standardized diagnostic interview (i.e., the categorical approach). Since none of these approaches can be regarded as the gold standard for assessing and defining caseness, some studies have used combinations of these approaches.

The Clinical Approach

In studies that use the clinical approach, the children and their parents are interviewed by a clinician. By using the clinical interview techniques and clinical judgement, aspects of the child´s functioning not covered by standardized assessment procedures can be determined. Furthermore, respondents´ answers due to misinterpretation of the questions can be dictated. However, a major disadvantage of this approach is the cost and time involved in having clinicians do interviews on a large scale.

The Dimensional Approach

This approach uses checklists and questionnaires which have been designed to elicit some specific symptoms of a particular disorder. Individuals with high problem counts or syndrome scores can be considered cases. A strength of this approach is that the assessments are standardized and can be as general or specific as the investigator wishes. Two problems with the dimensional approach are that it does not allow the formulation of a clinical diagnosis of a psychiatric disorder, and that the cut-offs used to indicate caseness can be arbitrary.

The Categorical Approach

The categorical approach involves identification of psychiatric disorders within the DSM and ICD systems, and favours the use of standard diagnostic interview which can be administered by trained lay interviewers. Numerous epidemiological studies have been conducted with children and adolescents using structured interview schedules diagnoses based on DSM-III, DSM-III-R, and DSM-IV criteria.

Epidemiological Studies

Numerous epidemiological studies of child and adolescents have been conducted in various countries in the past three decades, which have contributed to our understanding of the prevalence and distribution of psychiatric disorders in children and adolescents.

The Isle of Wight Studies, UK

This seminal first large-scale epidemiological survey aimed to establish the prevalence of psychiatric disorders in children aged 10 and 11 years, using a two-stage design [8]. Parents and teachers of all of the 10–11 year old children who lived on the Isle of Wight completed a set of questionnaires about the child´s emotional and behavior problems. Children at high risk for psychiatric disorders were selected for more detailed assessment. Psychiatrists and other clinicians were used as interviewers for the detailed assessments, and made diagnoses based on the ICD.

The New Jersey County, USA

This two-stage epidemiologic study was designed to estimate the lifetime prevalence of selected psychiatric disorders [18] among 5,108 (2,564 boys and 2,544 girls) school children aged between 14 and 17 years who were recruited from eight secondary schools in the New Jersey County. During the first stage of the study, the following questionnaires were used: the Leyton Obsessional Inventory Child Version, the Beck Depression Inventory, Eating Symptoms Inventory, Eating Attitudes Test, and items to elicit symptoms of panic disorder. Additionally, some items were developed to assess anxiety and some items were taken from the Framingham and Tocorna Scales to measure Type A and Type B behavior patterns. Other questions included those used to elicit sociodemographic characteristics, school attendance and grades, and personal and family health. The questionnaires were administered by the teachers during the classroom hours. Those with positive results on more than one screening test (N=468) had a strong chance of being selected for the second stage interview. The interview, which was conducted by 13 clinicians, began with having each student completed the Youth Self-Report form of the CBCL, followed by questions for the assessment of eating disorders, depression, anxiety disorders, and obsessive-compulsive disorder according to DSM-III criteria. Psychosocial impairment was assessed by the clinician using the Children´s Global Assessment Scale.

Columbia, MI, USA

The sample consisted of 150 adolescents aged 14–16 years who were randomly selected from public schools in Columbia [9]. Interview with the adolescent and one parent was done at home with the diagnostic interview for children and adolescents. The parent also completed the Child Behavior Profile. The adolescents completed several questions including the Parental Bonding Instrument, the Conflict Resolution Scale, and the Piers-Harris Children's Self-Concept Scale. General dysfunction and the condition's seriousness were rated by a clinician, using a scale developed to score the adolescent's need for treatment. "Caseness" was defined by the presence of psychiatric diagnosis based on the DICA, and who were judged by two independent clinicians as in need of treatment.

The Ontario Child Health Study, Canada

A simple random sample of 2,317 children was taken of children aged 6–16 who attended public schools in an industrialized, urban setting [14]. A total of 1,751 parents completed the problem checklists and gave informed

consent to obtain teacher assessments. The questionnaires were mailed to the teachers to complete. A stratified random sample of participants for stage 2 assessments, which took place 1–3 months after stage 1, were done on the basis of age, sex, and high versus low symptom scores on the Ontario Child Health Study Scales. Altogether 251 of the 329 children who were selected for stage 2 agreed to participate. During stage 2 assessments, parents and children/adolescents completed problem checklists and were administered the revised version of the Diagnostic Interview for Children and Adolescents 2 times at 3 weeks apart. The clinicians consisted of five child psychiatrists, who have been trained in using the DICA-R.

The Puerto Rican Child Psychiatry Epidemiologic Study, Puerto Rico

A total of 777 children aged 4–16 were randomly selected from households in the island of Puerto Rico [1]. The study used a two-stage design. During the first stage, the parent and teacher versions of the Child Behavior Checklist were used, and children who scored above the cutpoint on either the parent or the teacher version of the CBCL were randomly selected from the total sample for a second-stage assessment. The interview was done with the mother at home to obtain information related to family composition, and to obtain the parent version of the CBCL, demographic data, and various risk factors of disorders. Clinical assessments in the second stage were based on parent and child interviews with the Spanish diagnostic interview schedule for children. "Caseness" was operationalized by combining the presence of a diagnosis and impairment level. That is, for every psychiatric diagnosis, the psychiatrist also scored each child on the Children´s Global Assessment Scale to measure adaptive functioning. Thus, a child who received a psychiatric diagnosis and had a score below 61 on the CGAS were considered the "definite cases," and those with a diagnosis and had scores ranging from 61 to 70 were the "probable cases."

The Dunedin Multidisciplinary Health and Developmental Study, New Zealand

The sample for this study belonged to a cohort of children born at the city´s maternity hospital between April 1, 1972 and March 31, 1973. The children have been followed from birth to age 21 with a comprehensive investigation including health, mental health, and academic attainment [13]. These children were first assessed at age 3 years (N=1,037), then reassessed every 2 years (5, 7, 9, 11, 13, 15) and three-yearly at ages 18 and 21 years. At ages 5, 7, and 9 years, the children were assessed with the Rutter Child Scales for completion by parents and teachers. At age 11, diagnostic interviews were conducted using the Diagnostic Interview Schedule for Children; whereas at 13 and 15 a modified DISC was used, and at age 18, a modified version of the adult Diagnostic Interview Schedule was employed. This study also included scales to measure family, peer and school attachment, life stress and general background circumstances.

The Christchurch Health and Developmental Study, New Zealand

This longitudinal study has followed a birth cohort of 1,265 New Zealand children born in the Christchurch urban region during the mid-1977 at birth, 4 months, 1 year, and annual intervals to the age of 15 years. Data were available from various combination of informants: maternal, child, and teacher [6]. At ages 15 and 16 years, maternal reports and self-reports of different symptoms were used. Mothers were interviewed at home and children at school by different interviewers. The abbreviated version of the DISC was administered to the children to measure anxiety disorders, oppositional defiant disorder, and attention-deficit hyperactivity disorder, supplemented by additional items to meet DSM-III-R criteria. Conduct disorder was assessed using the Self-report Early Delinquency Scale and substance abuse behavior (tobacco, alcohol, and illicit drug abuse) using survey questions, supplemented by the Rutgers Alcohol Problems Index. Maternal reports of the child were obtained using the DISC interview for anxiety and mood disorders, the Revised Behavior Problems Checklist to measure oppositional defiant and attention-deficit hyperactivity disorders; the parent version of the Self-report Early Delinquency Scale was used to assess conduct disorder. Children's problem with tobacco, alcohol, and illicit drug were obtained from questions about the parent's perceptions.

The Northeastern Study, USA

This study began when a sample of 385 5-year old American children entered kindergarten, and who were re-interviewed at ages 9, 15, and 18 years [15]. The Diagnostic Interview Schedule, Version III-R was used to provide a lifetime diagnosis of major depression, anxiety disorders, and substance use disorders according to DSM-III-R criteria. Parents completed questionnaires and/or interviews when the children were aged 5, 9, and 15 years old. Teachers' reports and school records of grades were gathered for the period from ages 6 to 15 years. Multiple sources of information used included a structured clinical interview for assessing psychiatric disorders

and ages of onset, self-report questionnaires for evaluating current functioning, and school records for academic performance and suspensions or expulsions. The mother gave information about the children's health for prenatal period to age 5 years. Ten trained interviewers with either research or clinical experience administered the DIS for DSM-III-R to the 18-year old adolescents. Indices of current behavioral, emotional, academic, and social functioning were assessed through self-report measures and school records: (1) The Youth Self-Report form of the CBCL provided overall emotional and behavioral functioning; (2) Self esteem was measured by the Rosenberg Self-Esteem Scale; (3) Interpersonal problems were assessed by the Interpersonal Problems Scale; (4) Information about course grades were taken from school transcripts; (5) School suspensions or expulsions in the preceding year were taken from school records and self-reports; and (6) Arrests in the previous year or involvement in the juvenile justice systems were based on self-reports.

The New York Child Longitudinal Study, USA

A total of 975 children in the age range of 1–10 year were originally sampled in 1975 from the upstate New York countries [2]. The first follow-up interview was done 8 years later, and the second interview when the children were aged 9–18 years old. Diagnoses were determined using the DISC, including attention deficit hyperactive disorder, conduct disorder, oppositional defiant disorder, overanxious disorder, alcohol abuse and major depression. The data from the two informants were aggregated to provide a single diagnostic set using the "or" rule. That is, symptom is considered present when either the mother or the child answered positively to the symptom. Children who met a diagnostic criteria and additionally had the scale scores more than one or two standard deviations above the population mean were given "moderate" and "severe" diagnoses, respectively.

The Oregon Adolescent Depression Project, USA

A total of 1,710 high school students (mean age=16.6 years) in three cohorts (1987, 1988, 1989) were recruited for the study, of which 1,508 participated in two interviews [11]. The schools were located in two urban communities with a population of about 200,000, and three rural communities in West Central Oregon. The schools were chosen because of their locations, all being within 100 miles from the project center. Sampling was designed based on parental consent and proportional stratification according to gender, grade and school size. The diagnostic interview used during the first interview (Time 1) was the Schedule for Affective Disorder and Schizophrenia for School-age Children. At a follow-up investigation (Time 2), done a year later, the LIFE interview was used to determine the course of the psychiatric disorders present at Time 2 and the onset of new disorders since Time 1. The participant's psychological, social, and occupational functioning and the need for treatment were evaluated by the interviewer using the Axis V Global Assessment of Functioning. The interview was conducted by one of 27 interviewers with advanced degrees in clinical or counseling psychology or social work, who had finished a 70-h didactic and experiential course in diagnostic interviewing. To determine the clinical significance of episodes of affective disorders, all adolescents with a current diagnosis of affective disorders were rated by three child psychiatrists with respect to "current level of functioning," "highest level of functioning during the past year," "severity of depression," and the "need for treatment."

The Cambridgeshire Study, UK

A total of 1,060 girls aged 11–16 years were recruited from three secondary state schools- one urban and two rural-within the county of Cambridgeshire [3]. The Mood and Feelings Questionnaire, was administered in the classroom, and was used to identify mood disturbance. A stratified random procedure was used to select the subjects for a more detailed interview. For each year within each school, subjects were divided into three groups in terms of their score on the Mood and Feelings Questionnaire. All those in the top 10%, one in two of the next 10%, and one in ten of the remainder were selected for interview. All interviews were conducted by three trained interviewers who had experience in working with young people in health care, education, or both.

The NIMH Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study

The sample consisted of 1,285 pairs of youths aged 9–17 years, and their caretakers, who have been drawn from four geographic areas in the United States: (a) Hamden, East Haven, and west Haven, Connecticut; (b) DeKalb, Rockdale, and Henry counties, Georgia; (c) Westchester County, New York; and (d) San Juan, Puerto Rico [10]. The computer-assisted version of the DISC was used to diagnose psychiatric disorders based on DSM-III-R criteria. In the second part of the interview, the youths completed a set of instruments that comprised of demographic factors, patterns of service utilization, barriers to service utilization, social and instrumental competence, functional impairment and potential risk and protective

factors (e.g., family environment, family history of psychiatric disorder, parental supervision, life events, and pubertal development). The youths also completed the Peabody Picture Vocabulary Test-Revised.

The Bremen Adolescent Study, Germany

The Bremen Adolescent Study is a longitudinal study of the epidemiology of psychiatric disorders among 12–17 year olds [5]. The specific aims of the Bremen Adolescent Study are to estimate the prevalence, risks, course and outcome of psychiatric disorders, to determine their age of onset and severity, to examine the comorbidity patterns of disorders, and associated psychosocial impairment, as well as service utilization patterns. The children and adolescents were administered the computerized Munich version of the Composite International Diagnostic Interview to make diagnosis of current and past disorders according to DSM-IV. Participants were randomly recruited from 36 schools in Bremen, Germany. Data collection for the first wave of the study took place between 1996 and 1997, and for the second wave, about 15 months later. The data used in the first wave of the study comprised of 1,035 adolescents (421 males and 614 females), and for the second wave, it was 523 adolescents (195 males and 328 females). Parents provided information about themselves (education, occupation, health status), their family and the child via a set of questionnaire which they completed at their home.

The Zurich Epidemiological Study of Child and Adolescent Psychopathology (ZESCAP)

The main aim of the ZESCAP (Steinhausen et al., 2007) was to examine the prevalence of psychiatric disorders on a sample of 1,964 pupils living in the Canton of Zurich, Switzerland. The cohort was a stratified randomized sample which represented 12 counties of the canton, the school grades, and the types of school. Based on 158 schools, 2,780 parents were contacted by letter, for which a total of 2,192 (78.8%) of the parents expressed willingness to participate in the study. This study used a two-stage procedure, in which parents were asked to respond to the Child Behavior Check-list in the screening phase. The following cut-offs were used: (1) the 90th percentile of the attention problem scale (score 27), (2) the 95th percentile of the anxious-depressed scale (score >9) and (3) the 95th percentile of the total score of the aggressive and the delinquent behaviour scale (score >19). In the second stage, structured interviews were performed with 399 parents representing both screen positive and control children. DSM-III-R diagnoses were derived by using the German version (6) of the Diagnostic Interview Schedule for Children-Parent Version (DISC-P 2.3).

The Great Smoky Mountains Study of Youth

The main aim of The Great Smoky Mountains Study (GSMS) was to examine the development of, need for, and use of mental health services in children and adolescents in an area of the southeastern United States [4]. It used a multistage, overlapping cohorts design, in which 4,500 of the 11,758 children aged 9, 11, and 13 years in an 11-county area of the southeastern United States. Children who scored in the top 25% on the screening questionnaire, together with a one in ten random sample of the rest, were recruited for four waves of intensive, annual interviews (n=1,015 at wave 1). In addition to this sample, all American Indian children aged 9, 11, and 13 years who attended reservation and public schools. The screening measure consisted of the "externalizing" broad-band scale items from the child behavior checklist. The following constructs were measured in the study: Risk for mental health service use; service use, access, and barriers to care; family resources, family functioning; psychiatric symptoms, and family burden; Child's physical health and development; adversity and traumatic events; and community resources.

Children were screened and interviewed close to their 9th, 11th or 13th birthday. Families recruited for the interview stage of the study were visited at home by two interviewers. Following the wave 1 interviews, families were contacted by telephone every 3 months, in which they were asked about any service use during the intervening period, and any change of address, school, or family structure.

The Quebec Study [16]

The main aims of this study are to examine: (1) the prevalence of DSM-III-R diagnoses among adolescents, (2) differences in the reporting of psychiatric diagnoses across informants, and to (3) examine the impact of including an impairment criterion on the prevalence of adolescent psychiatric disorders. During 1986 and 1987, 1,201 mothers and teachers of 4,488 French-speaking kindergarten children in the province of Quebec, Canada completed a set of questionnaires. Two thousands of these children were randomly selected for annual assessments throughout childhood and into adolescence. Between 1995 and 1997, mothers and their children (ranged in age from 14 to 17 years) were interviewed using the French translation of the Diagnostic Interview Schedule for Children to obtain the prevalence of DSM-III-R disorders and perceived impairment associated with these disorders.

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Epinephrine

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Synonyms

Adrenalin

Definition

Epinephrine is a neurotransmitter and hormone that is most strongly linked with the chemical triggering of the "fight or flight" response of the sympathetic division of the autonomic nervous system.

Description

Epinephrine represents one of a class of neurotransmitters referred to as the catecholamines [1]. Also known as adrenalin, functionally epinephrine's primary role is in the activation of the "fight or flight" response [2]. As such, epinephrine exerts its influence on the sympathetic division of the autonomic nervous system, which itself is one division of the peripheral nervous system. Originating in the adrenal glands, epinephrine is synthesized from norepinephrine [1]. When released by the adrenal glands, in a period of stress, epinephrine serves to activate the system to respond by increasing blood flow, heart rate, respiration, and blood pressure [3]. Once the system perceives the threatening situation has been negotiated to some extent, Epinephrine levels decrease, in turn, deactivating the sympathetic division and activating the parasympathetic division of the autonomic nervous system.

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Episodic Memory

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Synonyms

Autobiographical memory

Definition

Memory for specific events and episodes, connected to a particular context such as time, date, location, etc. including autobiographical memory.

Description

Episodic memory is differentiated from *semantic memory* (the knowledge of facts) as it includes "calling back into consciousness a. . .lost state that is then immediately recognized as something formerly experienced [1]," it allows for reliving of the original experience or for re-experiencing of the remembered event [2]," and can be "distinguished from knowledge of the past [2]."

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Epistemic Behavior

►Active Exploration

Equity

►Multicultural Education

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Life Dates

1902–1994

Introduction

Erik Erikson stands as the most renowned psychologist of child and adolescent development of the twentieth century. His theory of eight psychosocial stages of human development provides a framework for understanding both the physical and psychological needs of humans as well as the social factors that contribute to personality development. Identity is at the core of Erikson's developmental model. He coined the term "identity crisis," which involves a "renegotiating of one's values, as they are oriented around other individuals and society at large" [16, p. 150]. The chronology of his research interests, to a significant degree, parallels Erikson's own life history and personal struggle for identity.

Biography

Erikson was born June 15, 1902, in Frankfurt, Germany, to an unnamed father, who was a Protestant Dane, and to Karla Abrahamsen Salomonsen, a Jewish native of Denmark. Karla was not married to Erikson's Father, and she raised Erik as a single parent for 3 years in Buehl, Germany [13]. She then married Theodor Homburger, a German pediatrician and president of the local synagogue, who adopted Erik and changed his surname to Homburger. Erikson's distinct appearance – tall with blue eyes and blond hair – provoked ridicule from his Jewish peers [16, pp. 146–151]. Erikson was not told that Theodor was not his birth father until he was an adolescent, although he had his own suspicions.

Growing up in Germany, Erikson attended the Karlsruhe *Vorschule*, or primary school, from ages six to ten, and the Karlsruhe *Gymnasium* from ages ten to eighteen. He received an *Abitur*, a certificate that gave him permission to enroll in a university [13, 18]. Immediately after graduation, Erikson hiked in the Black Forest. In 1921, 1year later, Erikson enrolled in *Badische Landeskunstschule* (Baden State Art School) in Karlsruhe to receive formal training in art [2, 14, 19]. Before completing his training, Erikson left Baden to attend Kunst-Akademie, a famous art school in Munich. Two years later, Erikson moved to

Florence, and for the next few years of his life, Erikson "wandered through Europe sketching, making woodcuts, painting and visiting museums" [17, p. 147]. In 1927, at the age of 25, Erikson left Florence and returned home to Karlsruhe to study and teach art. Erikson referred to the 7-year period of his life after the *Gymnasium* as a *Wanderschaft*, in which he had the opportunity to wander and reflect. This un-rooted period continued until Erikson received an invitation from his good friend Peter Blos to help him run a small school in Vienna [2, 14, 19].

In 1927, Anna Freud, Sigmund Freud's daughter, hired Erikson for a job as an art teacher at the Hietzing School in Vienna, Austria. While teaching there, he earned a diploma in 1932 from the local Montessori teacher training school. This was the only formal degree Erikson earned after receiving his *Abitur* [14, p. 67], although he also took liberal arts and teaching classes at the University of Vienna. Erikson's observations and analysis of child behavior during his experience as a teacher sparked some of his initial insights into child psychology. After being psychoanalyzed by Anna Freud and receiving encouragement from his peers, Erikson pursued psychoanalytic study with Sigmund Freud and other psychologists at the Vienna Psychoanalytic Institute, graduating in 1933 [14, 17].

In 1930, Erikson married Joan M. Serson, a Canadian dance teacher at Hietzing School who had completed her master's degree in sociology at the University of Pennsylvania. She was in Europe investigating various schools of dance in anticipation of pursuing a doctorate in education at Columbia University and, when Erikson and Joan met, she was visiting Vienna to research new European dance movements for a possible doctoral thesis [2, 19]. Joan and Erik influenced one another to such an extent that their relationship "wedded their two fields of psychology and sociology, therein giving birth to *psychosocial* theory" [17, p. 147]. In addition to these professional influences, Joan's Protestantism and support of religiosity helped Erikson to steer clear of the anti-religious persuasions of Freud.

In 1933, as the Nazi regime began to threaten Austria, Erikson and his family left Vienna and eventually moved to the United States. He accepted a position with the Boston Psychoanalytic Society, and became the first child analyst in Boston. During this time he also became a research assistant at the Harvard Psychological Clinic, where his work focused on issues related to personal identity. In 1936, Erikson moved to Yale University where he worked on his developmental theory [17].

Three years later Erikson relocated once again, accepting a position at the Institute of Child Welfare at the University of California, Berkeley. Shortly thereafter, he began teaching graduate seminars and opened a private practice in the San Francisco area. Also in 1939, he formally changed his last name from Homburger to Erikson. Throughout this time, his ideas about ego development started to crystallize as he developed the concepts of *ego identity* and *identity crisis*. In 1949, he became a full professor at Berkeley. The security of a tenured position was, however, short lived. The turbulence of the McCarthy era affected all spheres of American life, and academia was not immune to the "red scare." After World War II and the fall of Chiang Kai-shek's regime to Chinese Communists, the Cold War fight against communism grew more intense [2, 14]. Anxiety about communism permeated the academy, with universities in California requiring their employees to take an oath of loyalty. Having affirmed his allegiance by signing a constitutional oath and an oath to the state of California, Erikson saw no legitimate reason to sign another pledge at Berkeley. In his view, these measures reflected a growing madness over communism [19]. Erikson believed the role of a professor was to encourage students to examine all sides of an argument rather than simply acquiesce to the "official truth." Erikson studied similar instances of hysteria with his students, and his conscience would not allow him to participate in this frenzy without a protest. Erikson understood that his students watched their professors' responses in historical moments like this [2, 19]. Erikson wrote a resignation statement in June 1950 explaining his refusal to sign the oath, and this statement was eventually read to the American Psychoanalytic Association. He wrote, "I would find it difficult to ask my subject of investigation (people) and my students to work with me, if I were to participate without protest in a vague, fearful, and somewhat vindictive gesture devised to ban evil in some magic way – an evil that must be met with much more searching and concerted effort" [2, p. 158]. In essence, Erikson would not sign an oath that he believed reflected hysteria about the growing fear of communism, and his unwillingness to sign the pledge led to his resignation from his tenured position. This protest not only confirmed his American identity, but it brought to the surface "the conflictual nature of a discordant identity struggling to see itself as whole," which set the framework for further exploration of the identity crisis in his later works [19, p. 67].

From the 1930s through the 1950s, the Eriksons watched their first three children, Kai (b. 1931), Jon (b. 1933), and Susan (b. 1938) develop through the first stages of the life cycle. Their last child, Neil, was born with Down syndrome and was institutionalized immediately after his birth in 1944. The Eriksons initially told the

other children that the baby had died. The subsequent revelation of the truth regarding Neil's birth provoked a crisis in the Erikson family, causing strife between the parents and children, while bringing Erik and Joan together to collaborate on the development of the life cycle. While Erik's parenting experiences had contributed to his ideas about human development, Neil's birth and abnormalities may have precipitated the completion of the life cycle model. Creating a model that highlighted the "normal" process of human development, one biographer has suggested, provided an escape from the family crisis of having an "abnormal" child [14].

In 1951, Erikson accepted a position at the Austin Riggs Center, a mental health facility in Stockbridge, Massachusetts, where he remained until 1960. During these years Erikson became more vocal regarding the positive role of "religious traditions as a transmitter of values and psychological well being across the life span" [17, pp. 147–148]. After a brief stint as a part-time teacher at Massachusetts Institute of Technology in 1958, Erikson was offered a professorship at Harvard University. Drawn to opportunities to work with researchers across various disciplines, Erikson accepted the challenge and joined the faculty in 1960. The students admired him, and many of his new colleagues hoped that his interdisciplinary approach would bring together many scholars from various fields [2, 14].

Childhood and Society: Erikson's Exploration of Childhood and Youth Development

Throughout the 1950s and 1960s, Erikson published his theories of human development, paying special attention to childhood and adolescence. *Childhood and Society*, published in 1950, is the first text that outlines Erikson's model of the life cycle. Stemming from his training in Freudian psychoanalytic theory, Erikson created a model of human development that extended Freud's psychosexual stages of development, integrating "both psychobiological and sociocultural factors" [17, p. 146]. Unlike Freud's theory, Erikson's model of eight psychosocial stages of development encompassed the entire life span, demonstrating his belief that people moved through stages at particular times in their lives. Erikson posited that ego strength comes from the mastery of earlier developmental stages [13] (see ▶Erikson's Stages of the Life Cycle).

In the 1960s, Erikson published two other texts, *Youth*: *Change and Challenge* (1963) and *Identity*: *Youth and Crisis* (1968), which extended his research on childhood to adolescence, the stage at which youth must master the crisis of identity. In *Youth*: *Change and Challenge*, Erikson emphasized the strength of fidelity found in adolescence. The paradox of openness and focus, or the adolescent's desire to find trustworthy and reliable people, coupled with the ability to narrow and focus their commitments, provides a source of strength for adolescents as they gain perspective on their own lives and the world [2, 6]. *Identity*: *Youth and Crisis* examined the intersection between social reality and ego identity. Ego identity, in part, deals with the ability to accomplish what society deems important for future success, and, thus, one must be able to feel good about the future in the context of the current social reality [8, pp. 48–49]. Ultimately, Erikson integrated the importance of social context into his outline of the various crises a person faces from childhood to adolescence.

Beyond Childhood and Adolescence

Erikson's work extended beyond issues of childhood and adolescence. For example, between 1957 and 1962, Erikson wrote five essays that were eventually published under the title *Insight and Responsibility* [7]. This volume emphasized ethical, political, and historical concerns. "[H]e spoke as a psychoanalyst first – but one who also insisted on being an ethically concerned citizen, and a professional man very much involved with contemporary and historical *events* as well as clinical *problems*" [2, p. 267]. This work demonstrates Erikson's continued commitment to interdisciplinary study, which enabled him to engage ideas outside of psychoanalysis. In 1957, Erikson took a year-long sabbatical from teaching during which he and Joan went to Mexico so that he could write what he called a "study in psychoanalysis and history" [5]. Erikson attempted to study the actions and words of Protestant reformer Martin Luther through a psychoanalytic lens in order to illustrate and expand concepts such as identity, identity crisis, and moratorium. Erikson's examination of Luther centered on the years prior to his notoriety, exploring trends and patterns in his life that would explain how he was able to accomplish such sweeping historical reforms. He also sought to investigate the ways Luther resolved inner conflicts in search of his own identity [2, 14, 18]. Finally, Erikson's text on Luther demonstrated "the power of psychoanalytic approach and its concepts to integrate a wide diversity of information and make sense of it" [18, pp. 93–94]. *Young Man Luther* was published in 1958 as Erikson's first psychobiography, a literary form in which the author incorporated psychoanalysis with a person's life story [14].

The 1960s marked a ripe period for society to discover Erikson's work. The intense social, cultural, and political realities of the era opened the door for concepts that explored the intersections between self and society.

Erikson's diverse and broadening interests drew historians, theologians, biologists, sociologists, and philosophers to his research. At a time when the nation was at war, both the domestic war for civil rights and the global war in Vietnam, Erikson began a new book, *Gandhi's Truth* [2, 14].

Sparked by a trip to Ahmadabad, India, in 1962, Erikson [9] began to examine a strike led by Mohandas Gandhi three decades earlier. Summoned by mill workers in 1918, Gandhi went to Ahmadabad to organize a strike against mill owners. The mill hands suffered low wages and were willing to participate in a strike under the leadership of Gandhi, and they agreed to the conditions he asked them to follow during the protest. However, fearing that the mill hands would break their agreement to nonviolence, Gandhi decided to fast from food until the strike was over. Gandhi's fast affected both the mill workers and the mill owners. Erikson, drawn to Gandhi's ability to mobilize groups of people, wanted to search for the truth that inspired Gandhi's political and spiritual leadership. *Gandhi's Truth* was Erikson's second attempt at psychobiography. Although Erikson began the book in 1965, *Gandhi's Truth* was not published until 1969. Making little reference to the life cycle, Erikson chronicled Gandhi's life experiences in order to explore the ways he negotiated identity amidst great crisis. Erikson sought to discover Gandhi's truth by exploring the various sites he frequented when he was alive. Ambalal, Gandhi's benefactor and opponent in the strike at Ahmadabad, welcomed Erikson into his house as a guest as he constructed the psychobiography. Erikson also tried to understand pertinent concepts such as *dharma*, *Satyagraha*, *Artha*, and *Moksha*. As Erikson attempted to understand Hindu principles, cultural sensitivity guided his research. Lectures at Cape Town University in 1968 and Harvard University in 1972 underscored the didactic nature of *Gandhi's Truth*. Erikson challenged what he termed "pseudospecies" by highlighting Gandhi's response to crisis in his later years. Erikson [8] defined *pseudospeciation* as "man's deep-seated conviction that some providence has made his tribe or race or caste, and, yes even his religion 'naturally' superior to others" (p. 298). As Gandhi confronted these attitudes, he responded to social circumstances by drawing on inner virtues that stressed mutual respect, honesty, and the humanity of all people. *Gandhi's Truth* won Erikson his first Pulitzer Prize on May 4, 1970, as well as a National Book Award [2, 14].

Not only did Erikson look favorably on Gandhi's campaigns in India, he also "found some salutary effect in the Black Muslims' effort to restore African American identity; he would not dismiss black nationalism out of hand" [14, p. 399]. As a result, Erikson was open to his son Kai's insistence on a meeting with Huey P. Newton, leader of the Black Panther Party. In January 1971, Kai arranged for Newton to conduct a seminar for Trumbell College students, with his father in attendance. Due to the exaggerated national media coverage, the seminar did not go well. Therefore, Newton arranged for Erikson to meet him at a friend's apartment in Oakland, California. During the dialog, they discussed American racism, and while they disagreed on several points, Erikson and Newton respected each other. *In Search of Common Ground* records the dialog between Newton and Erikson [12]. Erikson, nevertheless, ended the friendship with Newton when he learned of his involvement in violence against civil authorities [14, pp. 399–401].

After he retired from Harvard in 1970, Erik and Joan moved back to Stockbridge, but spent summers at a home in the Cape Cod town of Cotuit [14]. Three years later, they moved back to California, living a short time in Belvedere and then Tiburon. "Old Tiburon" afforded them both an opportunity to write while living in a serene community of professionals and artists. However, during this period the Eriksons encountered financial difficulties. Erikson's work also received scathing critiques from feminists, psychoanalysts, psychologists, and a variety of other sources, and he attempted to respond to his critics through journal articles. At the same time, he continued to receive invitations to give lectures and engage in research. Nevertheless, health problems made it difficult for him to write or travel. Joan became involved in a nearby Episcopalian parish and Erik met with local clinicians to assist them in reviewing case files on schizophrenic patients [14, 18].

The Life Cycle Completed: Erikson's Encounter with Old Age

Although a major portion of Erikson's work focused on child and adolescent development, he also emphasized adulthood and old age in his description of the life cycle. Perhaps Erikson's examination of such issues was a sign of his own development as he entered the later years of his life [15, pp. 928–930].

In 1982, at age 80, he published *The Life Cycle Completed*: *A Review*, which summarized his most salient concepts [10]. This book demonstrated Erikson's personal need to reconsider old age and the death that he would eventually face. The text extended Erikson's understanding of the concepts of wisdom and integrity to include a rich holistic inner and outer vitality. Erikson emphasized the connections between early infancy and old age. In addition, the book demonstrated a distinct shift to historicism. Even after publishing the first edition of *The Life*

Cycle Completed, Erikson continued to gain new insights about the later stages of development; he scribbled notes on the pages of his own copy with the hope of eventually writing a new edition. Erikson collaborated with Joan Erikson and Helen Kivnick to engage in further research on what sustained elderly people's involvement in their own lives. Their research centered on interviews from 29 octogenarians who, as children, had participated in an earlier study in 1928. By revisiting these research participants, the Eriksons and Kivnick were able to investigate people who had experienced most stages of the life cycle. This new research was published in *Vital Involvement in Old Age* in 1986 [11]. When it became apparent that Erikson could not write an updated edition of *The Life Cycle Completed*: *A Review*, Joan Erikson updated the book by writing new chapters to add to the original version. The new chapters included a ninth stage of development that focused on the life cycle of individuals in their eighties and nineties as well as a focus on caring for the elderly and gerotranscendence [13]. Overall, both *Vital Involvement in Old Age* and *The Life Cycle Completed* reflected the thoughts that Erikson reconsidered and reformulated about the later stages of life as he himself encountered old age [14, 19] (see ▶Erikson's Stages of the Life Cycle).

In the 1980s, Erikson received various honors for his contributions to the field of psychotherapy. The founding of the Erik H. and Joan M. Erikson Center in conjunction with Cambridge Hospital psychiatry department and Harvard Medical School prompted the Eriksons' move from Tiburon back to Cambridge in 1987. Dorothy Austin, director of the Erikson center, offered the Eriksons an "intergenerational home," where she and Diana Eck, a young Harvard professor, would serve as caregivers should Erikson's health deteriorate [19, pp. 463–464]. Excessive sleep and loss of hearing signaled a decline in Erikson's health. As the interest in services offered by the Erikson center declined, and Austin and Eck pursued other career interests, Joan found herself overwhelmed with providing care for her husband. Erikson, nevertheless, continued to engage in intellectual activity as he experienced the integration between old age and infancy, in which he had to depend on the consistent care of others. One of Erikson's final tasks was the clinical supervision of Harvard doctoral student David Wilcox, to whom Erikson passed on the significant lessons he had learned during his own training. This supervision ended in 1990, and marked a shift in Erikson's accessibility to the outside world and the outside world's access to Erikson [14]. Erikson conceded to Joan's control over their lives, specifically her role as an intermediary with those seeking access. Often, Joan would make presentations for him and limit his contact with persons with whom she felt uncomfortable [14]. In 1992, Erikson fractured his hip and underwent surgery, after which he found it difficult to walk. After this fall, his health continued to decline. Stevens [18] speculates that Erikson may have been experiencing the early stages of Alzheimer's disease (p. 13).

In 1993, Joan placed Erikson in a nursing care facility in Harwich, Massachusetts, and purchased a nearby home to remain close to him. Erik could only move with a wheel chair and his health continued to fail. Erikson's final transition came in 1994 when he caught an infection that led to his death. On May 11–12, Joan held Erikson's hand and sang to him through the night. At four o'clock in the morning, Erikson died at the age of 91. Erikson's created ashes were interned and a funeral service was held on June 15, 1994, at First Congregational Church of Harwich. Several commemorative services and forums followed the memorial [14, pp. 471–473]. Ultimately, his accomplishments and contributions to the field of child development have left a legacy that will endure for generations.

Accomplishments

Erik Erikson was considered a "cultural hero" during his lifetime [18, p. 13; 14, p. 396]. In 1970, he occupied the cover of the *New York Times Magazine*. Presidents Johnson and Nixon invited Erikson to the White House. Various universities awarded him honorary doctorates, including Yale and the University of California, Berkeley. The University College of London appointed him to the first Freud Memorial Chair. The San Francisco Psychoanalytic Institute renamed its reading room after Erikson. The American Psychiatric Association invited Erikson to speak in 1984. In 1987, the Psychiatric Clinic of Karlsruhe (Germany) dedicated an adolescent unit in his honor [2, 13, 17]. These accomplishments highlight Erikson's ability to touch many arenas of society.

Erikson's research proved relevant to the public, private, and academic arenas of life. His theory gained such wide acclaim because it emphasized the human person in all aspects of life, from childhood to old age. Not only did his theory touch the intrapsychic development of persons, it also included the ways society informs, promotes, and hinders identity formation.

Contribution to Child Development

In Erikson's theory, childhood stages are an essential aspect of the life cycle. Childhood builds the foundation for adulthood, and the formation of values begins in these early stages. For example, Erikson's theory about child's play introduces a new outlook to psychology. To Erikson,

the activity of child play is valuable for the child because it represents a space where the child can make sense of the world, and it incorporates both problem-solving and meaning-making. It also reveals what children prioritize [2, pp. 129–131, 4, 6]. Unlike adults who view play as vacation *from* work, play *is* work for a child. Recognizing play as worthwhile challenges families and academic institutions to not only value play, but to provide space where children can engage in play as a means for development. Erikson's studies on childhood influenced DeMause [3], Ariès [1], and Hunt [15] in their own studies of the history of childhood [19]. Erikson [9] also makes explicit connections with the "relationship of childhood play to political imagination" (p. 11). These connections enhance the understanding of the contributions of social institutions to childhood development. Erikson [4] emphasized that unless a child experiences proper development in the earlier stages, the person experiences the conflicts at later stages as more and more difficult to overcome. In many ways, the health of a person depends upon the successful integration of earlier childhood stages.

Furthermore, Erikson's life-cycle model creates a framework for researchers to interpret and analyze children's behavior and development. Using his model as a lens enhances one's understanding of contemporary issues such as juvenile delinquency. For example, Erikson's "triple book-keeping" method of looking at physiological needs, social context, and psychological processes has many implications for understanding the behaviors and attitudes of dispossessed, disenfranchised, and underprivileged youth. Erikson acknowledged that external circumstances influence the emotional states and overall health of children. In addition, society plays an integral role in Erikson's theory because society provides the conditions in which children develop. This acknowledgement yields responsibility and moral accountability to parents and society as a whole for the development of children. In essence, Erikson's model provides a foundational framework with which to analyze the behaviors and attitudes of children while simultaneously acknowledging the parental and societal contributions to childhood development.

Erikson's contributions to childhood development have affected a wide range of issues related to the formation and growth of children. Not only did Erikson add to the content pool of research; he also contributed his own research method. As Stevens [18] explains, Erikson's sensitivity to the way his clients felt revealed a concern for people that prevented a myopic focus on research. Erikson became "not just an interpreter but a medium through which they can work through what conflicts they feel" (p. 107). He demonstrated that the subjectivity and social contexts between client and therapist are valuable and relevant to analysis [18]. In essence, Erikson attempted to exemplify some of his own concepts in the way he conducted research, concepts that stressed the societal role of child development.

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Erikson's Preschool Stage of Social-Emotional Development

▶Initiative Versus Guilt

Erikson's Stages of the Life Cycle

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Synonyms

Ego development stages; Stage sequence of ego epigenesis; Stages of identity development; Stages of psychosocial development

Description

Developmental psychologist Erik H. Erikson constructed a theory of the human life cycle composed of eight stages, each of which represents a particular period in human development. Erikson theorized that an individual's development relies on three processes: "the biological process of the hierarchic organization of organ systems constituting a body (*soma)*; . . . the psychic process of organizing individual experience by ego synthesis (*psyche)*; and. . . the communal process of the cultural organization of the interdependence of persons (*ethos*)" ([8], pp. 25–26). A developing body, a developing mind, and dynamic sociocultural milieu are the three primary processes underlying a person's identity formation and psychosocial development.

Erikson based his developmental theory on the biological logic of "epigenesis," which refers to the prenatal process by which, through a sequence of structurally elaborated stages, a fertilized egg cell develops into a fetus. Erikson saw a parallel between Freud's understanding of the biologically-based development of psychosexual modalities (oral, anal, phallic, latency, and genital) and the development of more general psychosocial modalities (trust, autonomy, initiative) but, with new insight, Erikson proposed that the epigenetic process continues throughout the entire life cycle. The structure of biological growth and psychosocial development, that is, follow analogous, interactive patterns across the lifespan. In Erikson's theory, a time of ascendancy in each stage of development affects the whole hierarchy of development. Ascendancy refers to the gradual, sequential way a child naturally grows in accordance with both outer (biological) and inner (*psyche*) laws of development in relation to persons and institutions (*ethos*) [5]. Erikson theorized that *every* person would encounter each of the eight stages in the same sequential order, although the chronological age and cultural content could vary due to maturational differences in biological growth and cultural differences in the content and timing of social expectations.

Each new stage is characterized by a period of development during which the child must resolve a psychosocial "crisis" (turning point) in order for him or her to mature in terms of ego identity and related ego strengths or virtues. A psychosocial crisis results from the organic pressures on the psyche of a person, which arise from physiological changes, coupled with new age-related social expectations that stem from the larger sociocultural system. These pressures create the conditions necessary, but not sufficient for, the next stage of personality development, including the attitudes that individuals have about themselves and the world [8]. Character dimensions, such as trust and mistrust, emerge throughout the life cycle, and Erikson [6] recognized that the task of each stage is to integrate the dimensions in a ratio that favors positive character virtues over negative (e.g., trust over mistrust). The ratio of dual character dimensions associated with each new stage influences a person's ego identity. Ego identity refers to the process whereby "the accrued confidence that one's ability to maintain inner sameness and continuity (one's ego in the psychological sense) is matched by the sameness and continuity of one's meaning for others" ([2], p. 95). Erikson extended his theory of the life cycle to relate each stage to institutions in the larger society [5]. The character dimensions and virtues produced within the stages, in some sense, prepare or teach people how to live in and contribute to society as a whole. (See Chapters, Psychosexual Development and Erik H. Erikson for more information.)

Psychosocial Stages

Stage 1: Basic Trust Versus Basic Mistrust

The infant relies on others to provide basic nourishment needs. At this "oral stage," the infant learns how to get and take in using the mouth and other senses. The infant's apparent query, "Can I trust again?" builds on the infant's biological preoccupation with, "Will I be fed again?" [12]. Having sensations fulfilled faithfully by familiar people engenders trust. Trust implies the attitude of reliance on primary caregivers as well as confidence in one's self. Consistent care and nurture enable the baby to gain a sense of confidence in the future. A baby internalizes the continuity of experience and begins to form attitudes of the world based on having his or her needs met. Erikson tends to emphasize the mother's role during this stage of development. Indications of trust include a sense of ease when feeding that the breast or bottle will provide sufficient milk, and a sense of assurance when sleeping that the nipple will be there again. The balancing character

dimension, mistrust, is a "readiness for danger and an anticipation of discomfort" ([10], p. 15). A sense of mistrust leaves a child feeling deprived, divided, and abandoned; symptoms of mistrust include withdrawal or isolation [5, 6]. Attaining a favorable ratio of trust over mistrust gives rise to the ego strength, or virtue, of *hope*, which is an abiding trust and confidence in others (e.g., caretakers), the self (e.g., trustworthiness), and the future. Hope also entails "the enduring belief in the attainability of fervent wishes, in spite of the dark urges and rages which mark the beginning of existence" [14]. According to Erikson, trust and hope have a natural affinity with the social institution of religion. (See Chapter Trust versus Mistrust for more information.)

Stage 2: Autonomy Versus Shame and Doubt

During the toddler age period, psychosocial autonomy relies on muscular maturation, verbalization, and locomotion. Muscular growth expands a child's development and prompts the psychosocial modality of letting go and holding on. During this period the child develops a new sense of self and the word "No!" — an affirmation of this new sense of relative autonomy — becomes the child's favorite expression. Children develop "from oral sensory dependence to some anal-muscular self-will" and a certain sense of self-control ([8], p. 78). However, if the process of toilet training makes the child overly self-conscious, the child may experience shame and low self-esteem. Shame leaves a child with feelings of restraint, self-doubt, and compulsion; a symptom of shame includes an inability to share. However, a favorable balance of autonomy, or self-governance, over shame and self-doubt leads to a healthy personality. This favorable balance produces the virtue of *will*, which allows the child to exercise willpower, or free choice, as well as self-restraint [6, 8]. Erikson states that "the human being must try early to will what can be, to renounce (as not worth willing) what cannot be, and to believe he [or she] willed what is inevitable by necessity and law" ([8], p. 78). In this stage, parents are the child's strongest social influence; the child internalizes the parental voice, which helps to delineate between his privileges and his limitations in the social order. While the child develops self-will, the child also forms a conscience and the rudimentary ability to distinguish between right and wrong. Law-and-order ethics safeguard the child's developing autonomy. Ultimately, the adolescent and adult's participation in legal and political institutions reflects the ongoing psychosocial task of attaining autonomy on a societal level [2, 6]. (See Chapter Autonomy for more information.)

Stage 3: Initiative Versus Guilt

For children in the period that many societies consider the "play age," Stage 3 is characterized by the psychosocial conflict of initiative versus guilt. After becoming conscious of his or her personhood in Stage 2, the child attempts to make sense of what type of person he or she is going to be. As children at Stage 3 indulge in exploration, they embrace the favorite phrase "Why?" Initiative adds to autonomy the dexterity to plan a task. They move into psychosocial modalities that enable them to make things. Children are eager to collaborate with other children to construct things. Children imitate and idealize adults who play a role in their lives. Working adults replace the heroes of books and fairytales. While the family remains the child's primary social influence, the child's curiosity sparks an initiative to explore beyond the family into the new world [2, 4, 12, 13]. Guilt comes when adults constantly correct or discipline children for exercising their developing locomotor skills and mental power. Symptoms of guilt include inhibition, over-obedience, and repressed hopes and fantasies. The attainment of a favorable ratio of initiative over guilt produces the ego virtue of *purpose*, which is "the courage to envisage and pursue valued and tangible goals guided by conscience but not paralyzed by guilt and by the fear of punishment" ([6], p. 289). Children gain an economic ethos, whereby they recognize adults by their uniform and occupational duties. Because of adults' ability to relate their own childhood dreams to active adult life, Erikson suggests that the realization and support of a favorable ratio of initiative over guilt have a natural affinity with the economic order and political institutions [2]. (See Chapters Initiative versus Guilt and Oedipus Complex for more information.)

Stage 4: Industry Versus Inferiority

Industry versus inferiority marks the psychosocial conflict of Stage 4, which Western societies often think of as the "school age." At this stage, a child loves to learn as well as play – "and to learn most eagerly those techniques which are in line with the *ethos of production*" ([8], p. 75). Industry centers on productivity and specialization in learning. Erikson [2] says the personality crystallizes around the conviction, "I am what I learn" (p. 87). Provoked by curiosity and a desire to learn, the child's questions at this stage are "What is this?," "What is that?," and "How can I do?" [10]. The child's school and neighborhood become the social spheres in which to form friendships and experience other social exchanges. Children make positive associations with people who are knowledgeable and skill-oriented. Inhibition threatens a child's ability to master this stage. Children need to feel free to

explore through play while also facing and overcoming the challenge to learn something new. An unfavorable ratio of industry leads to a sense of inferiority or inadequacy. A symptom of a sense of inferiority is finding one's sole sense of identity and worth in industriousness, or work-like activities. The child who masters this stage, however, gains the ego virtue of *competence*, which is the child's belief that he or she can both begin and complete a project at an acceptable level. Emphasizing a child's abilities can create the type of affirmation needed to gain competence. Children need to find a space in which they acquire the sense that they can do at least one thing well. Erikson believed that psychosocial industry on the societal level and during adulthood was closely related to mastering new technology [5]. (See Chapter Industry versus Inferiority for more information.)

Stage 5: Identity Versus Identity Confusion

The primary task of the adolescent is achieving a favorable balance of identity over identity confusion. In Western societies, identity formation is most often articulated by the question, "Who am I?" If individuals master this stage, they will have a sense of ego identity, in which a unity exists between what one sees inside of the self and their perceptions of what others think or expect them to be [2, 3, 12]. Friedman [11] argues that identity emerges from the intergenerational mutuality that occurs between children at earlier stages and parents or caretakers at the generative stage (which will be discussed under Stage 7). A child's relationship with generative parents creates a framework from which the child can draw various identifications, which later converge with whom one senses himself or herself to be ([11], pp. 225–226). The primary social influence at this stage is the peer group. In this stage, individuals are able to embrace others with different values and ideas without fusing one another's identities. An unfavorable balance leads to role confusion, symptoms of which are delinquency, cynicism, apathy, and inability to settle on an occupational identity. Mastery of the psychosocial conflict gives rise to the ego virtue of *fidelity*, which is a "sense of commitment to a self-chosen value system and the capacity to maintain loyalties freely made in spite of unavoidable contradictions of value systems" ([12], p. 150). In other words, the adolescent "learn(s) to be faithful to something" ([10], p. 12). Because of such faithfulness, he or she must eventually confront ideology. The grasp for identity is visible across the lifespan on the societal level and, according to Erikson [2], in the social stratification of society as well. (For more information, see Chapters on Identity Achievement, Identity Crisis, Identity Moratorium, and Ego Identity.)

Stage 6: Intimacy Versus Isolation

This stage marks the period of romance during "young adulthood," in which the psychosocial crisis is intimacy versus isolation. The articulated question of this stage is "Who can I share my life with?" The conflict exists between one's desire for intimacy in a long-term relationship, and one's commitment to not losing one's self in the process. The primary relational influences are intimate relationships and work connections. Although romance is a component, this stage extends beyond sexual attraction to the formulation of relationships in which inner resources are mutually shared. Erikson clarified that the capacity of young adults "to lose themselves so as to find one another in the meeting of bodies and minds, is apt to lead sooner or later to vigorous expansion of mutual interests and to a libidinal investment in that which is being generated and cared for together" ([8], p. 67). In some sense, this stage flows from the previous stage of gaining a sense of self and feeds into the next stage of generativity. When individuals do not master this stage, they feel isolated or seek to distance themselves from others. A symptom of such isolation is the avoidance of intimacy and exclusivity. If this crisis is mastered, the young adult realizes the ego virtue of *love*, understood as "mutual devotion" ([5], p. 137). Relationship patterns in the larger social world reflect the intimacy gained during this stage [5]. (See Chapter Intimacy versus Isolation for more information.)

Stage 7: Generativity Versus Stagnation

The psychosocial preoccupation of the middle adulthood years is between generativity and stagnation. At this stage, the question "Whom or what can I care for?" correlates with the person's need to be needed. The psychosocial tasks are to create, to take care of what has been created, and to contribute to the next generation. Generativity manifests itself in the desire to guide the next generation. While Erikson places a focus on parental generativity, he also clarifies that even those who are childless can become generative socially. Societal generativity comes in the form of shepherding, mentoring, guiding, or nurturing what society has produced. The social sphere of influence during this stage comes primarily from work and family. When people do not become generative, they tend to become stagnant and self-absorbed. Symptoms of stagnation include excessive self-love and possible stage-wide regression [4]. The ego strength that arises from the successful resolution of the crisis of generativity versus self-absorption is *care*, which is "a widening commitment to *take care of* the persons, the products, and the ideas one has learned *to care for*" ([8], p. 67). Productivity and

creativity characterize mastery of this stage. The psychosocial generativity that arises during this stage of the life cycle is reflected in the societal generativity produced by the social institutions of art, education, and science [5]. (See Chapter Generativity versus Stagnation for more information.)

Stage 8: Ego Integrity Versus Despair

The older adult's apparent question, "Has my life been meaningful?," stems from the psychological preoccupation with facing death. Those who have a sense of personal integrity from the contributions they have offered during their life experience the rich depths of this stage. Only the one who has taken care of things and people, and has adapted himself or herself to the triumphs and disappointments of being, develops ego integrity. Persons in this stage value not only life, but their life within history. If a legacy can be established, there is no need to fear death. Integrity in this stage also manifests itself in guarding oneself against the experience of a diffused *soma, psyche*, and *ethos*. Despite numerous physical and psychological changes, a person must remain an integrated and whole individual, even as they come to understand the "integrative ways of human life" ([8], p. 65). In essence, integrity lends itself to creating order and meaning. The radius of social interaction extends to the cosmic world order. In contrast, the person who lacks ego integration expresses fear and despair at the thought of death. Regretting missed opportunities contributes to the level of despair one may feel, while embracing life as having been well-lived contributes to the level of felt integrity. One who dwells in regret of missed opportunities will feel high levels of despair, whereas one who reflects fondly on his or her life and legacy will feel high levels of integrity. With a new awareness of the transience of life, the person acknowledges their inability to have another chance to live life over again. Those who have not attained integrity may cover their despair with an attitude of cynicism [2]. Later, while experiencing old age himself, Erikson [8] reformulated the "antipathetic counterpart to wisdom" as disdain – "a reaction to feeling (and seeing others) in an increasing state of being finished, confused, helpless" (p. 61). Furthermore, in some sense, older adults connect with the infantile stage of trust again, bringing human development full circle. The ego strength or virtue associated with ego integrity is "wisdom," which is "an informed detached concern with life itself in the face of death itself" ([8], p. 61). On the societal level, Erikson saw integrity reflected in philosophy [5].

Ego Transcendence

During their later years, Erikson and his wife, Joan, speculated about the possible existence of a "ninth stage" of ego transcendence. In some sense, elders revisit and confront the more challenging elements of each stage all over again. The negative and positive tendencies are reversed. The major crisis of this stage is overcoming the sense of loss elders eventually feel. Loss of physical functions produces decreasing levels of self-esteem and confidence. Weakened bodies lead elders to ask daunting questions: "What am I good at?" "What am I good for?" "Who do others think I am?" Despair may follow as they begin to mistrust their own capabilities. Loss of autonomy over their bodies and life choices may evoke shame and doubt. Without the enthusiasm of earlier years and the ability to initiate new and creative projects, feelings of guilt and inadequacy may arise as the individual grieves the sense of lost purpose and incompetence. Identity becomes vague because the role a person took when young no longer fits who the person is in the elder years. The awkwardness that others feel when relating with elders who are experiencing "incapacities and dependencies" may lead to isolation of the elder ([8], p. 111). Because society usually ascribes generativity to active adults, society releases elders from the role of caretaker; this "not being needed may be felt as a designation of uselessness," which generates a feeling of stagnation in elders ([8], p. 112). What elders can or cannot physically and mentally engage in because of aging becomes a major concern when they look back over their lives. Healthy concerns and other forms of daily functioning may hinder thorough retrospection. Additionally, the loss of loved ones invokes sorrow and a sense of despair [8].

Joan Erikson [8] pointed out that when societies do not integrate the elderly into social life and ostracize and neglect them, the oldest adults may become "embodiments of shame" instead of "bearers of wisdom" ([8], p. 114). Nevertheless, despite the increasing sense of outer and inner loss, some elders welcome each new morning with a renewed sense of hope. Elders who adequately overcome the elements of mistrust, shame, doubt, guilt, inferiority, identity confusion, isolation, stagnation, despair, and disgust can experience "gerotranscendence," in which elders shift their focus from physical aspects of life to more transcendent aspects, which in turn leads to a deeper level of satisfaction [1, 8, 9].

Relevance to Childhood Development

Erikson's life cycle model established that the early stages were just as valuable as later stages. Unless children master these early stages, they may never develop the types of

skills necessary to master crises later in life. Erikson emphasized what he believed were the critical sociocultural factors in child development. Caregivers' consistent care and nurture, such as providing children with space for exploration, and caregivers' self-awareness of their childrearing strategies, each contribute to development of a healthy sense of self in relation to the world.

Erikson's stages also give parents, teachers, and mentors insight into the types of conflicts that children engage in as they develop. Forming healthy bonds between teachers, parents, and community members is one way that society can work together to provide a healthy environment that will promote healthy development. Knowledge about human development allows parents and teachers to be intentional about the type of learning and home environments they create for children. For example, teachers who learn how to alternate between play and class-work create a balanced environment in which children of school age have the conditions necessary to master their psychosocial crisis. On the contrary, when a child is unable to participate fully in stage-appropriate development, he or she may regress instead of developing [8]. Additionally, the behavioral and psychological patterns that children engage in during their development mirror social institutions in the external world. Therefore, encouraging children to engage in appropriate activities during each developmental stage prepares them for entry into a social world that engages in similar activities. Prohibiting engagement of appropriate activities makes transitioning into the adult world an even more arduous task.

Overall, healthy child development breeds competent individuals who can exhibit leadership in society. Erikson [2] wrote that to "assure continuity of tradition, society must early prepare for parenthood in its children; and it must take care of the unavoidable remnants of infantality in its adults" (p. 405). Additionally, Friedman [11] identified Erikson as creating a life cycle that "concerned the bonds of trust and sharing that facilitated adolescent identity (stage five) and old-age integrity (stage eight)" (p. 222). Erikson [2] argued that healthy children will not fear life if their elders have integrity enough not to fear death. The intergenerationality of the cycle not only teaches an awareness of self in relation to others, but also teaches a person how to parent. Healthy personalities enable children to gain ego identity and to develop the virtues that lead to morally conscious citizens.

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Errorless Learning

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Synonyms

Errorless teaching

Definition

A teaching arrangement minimizing errors by initially providing and then fading cues and prompts to evoke a desired behavior or skill.

Description

Errorless learning primarily comes from an operant psychology approach to teaching individuals to make discriminations [1, 2]. An example of a discrimination is teaching a child to identify a picture of a car when shown many pictures and told to "find the car." Discrimination learning is a paradigm used to examine the ways organisms learn and has implications for teaching children and adults with developmental delays. Traditionally, discriminations were taught with trial-and-error learning. In this situation, a reward is given when a correct selection

is made and no reward is given when an incorrect selection is made. Making errors is inherent in this approach to learning. Researchers have found that when children with developmental disabilities make errors, they occasionally exhibit aggression, emotional responses, and withdrawal from teaching. Errorless learning occurs when opportunities to make errors are reduced. This can be accomplished in a number of ways.

In describing errorless learning strategies, it is useful to call the correct item the S+ and each incorrect item an S−. Most errorless learning strategies involve the gradual fading of a stimulus or prompt. With stimulus fading, the S+ is originally presented more prominently than the S− and the S− is gradually faded in. For example, when presenting four pictures to a child and telling her to "find the car," the car is first placed closer to the child. On successive trials, the three other pictures are placed closer and closer to the car. With stimulus shaping, the stimulus gradually changes shape from a known item to an unknown item. An example is gradually, upon successive trials, altering a stimulus from a car to the letter "c." Superimposition is placing a known item with an unknown item and gradually fading out the known item. Superimposition with fading can be used to teach a child to find the "d" from among a few letters. A dog (previously known) can be placed behind the d and gradually faded out with correct selections. Two errorless strategies involve the movements of other people. A prompt is a cue to the S+. Delayed prompting is an errorless approach as the prompt is first provided immediately after the instruction and the time between the instruction and the prompt is gradually increased. Finally, response prevention is physically blocking a child from making an incorrect response.

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Errorless Teaching

►Errorless Learning

Escitalopram

►Lexapro®

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►Lithium

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Essential Amino Acids

Definition

An essential amino acid is an amino acid(building blocks for proteins) that cannot be manufactured in the body or are manufactured in insufficient quantities, and therefore must be supplied in the diet. Essential amino acids are usually supplied by dietary protein, and in humans include histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine. A *conditionally* essential (not normally required in the diet, but must be supplied exogenously to specific populations) amino acid is arginine. arginine is required by infants and growing children.

All essential amino acids are required for normal growth and development.

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Establishing Operations

►Motivating Operations

Estrogen

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Synonyms
Hormones

Short Definition
A female sex hormone found in people and animals.

Description
Estrogen is a hormone found primarily in females and is the equivalent hormone of testosterone in men. For women, estrogen plays a role in puberty, menstruation, ovulation, and reproductive behaviors. Additionally, estrogen has a role in the development of female genitalia prior to birth, as well as secondary sex characteristics during puberty. When using birth control, the amount of estrogen in a woman is manipulated in order to prevent pregnancy.

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Estrogen Breakthrough Bleeding

►Anovulatory Cycle

Estrogen Withdrawal Bleeding

►Anovulatory Cycle

Ethanol

►Alcohol

Ethchlorvynol (Placidyl)

►Depressants

Ethical Development

►Ethics

Ethical Reasoning

►Ethics

Ethics

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Synonyms
Ethical development; Ethical reasoning; Moral development; Morals

Definition
Ethics are a system of moral decision-making informed by a set of moral principles and standards of conduct.

Description
The broad field of ethics is a branch of philosophy that has been addressed within the discipline of psychology by theorists such as Piaget [6], Kohlberg [5], and Turiel [7]. A primary endeavor of these scholars was to come to an understanding of how a child develops ethics, also known as moral development.

There are several fields of thought when it comes to ethical development and reasoning in children. Despite varying theories about how ethics develop in children, most theories recognize moral development as occurring in stages. Piaget identified moral development in children through observation, mostly while the child was at play. Piaget postulated this development occurs as a mixture of cognitive processing and environmental observation. He further reasoned children learn about ethics and morals as they relate in social context and surroundings. The basis of Piaget's understanding of children's behavior centered largely on naturalistic observation, therefore, later researchers suggested the added dimension of children's reasoning was a missing component.

John Dewey theorized a method by which science and ethics might merge into one solid perspective of the world. Dewey searched for a way in which individuals might allow themselves to grow by discovering not only the ethics, rules and morals of society but also continually searching for purpose in life. This system of testing and pressing limits is often seen in children as they learn expectations of society, family and of themselves. Dewey's philosophy regarding moral development influenced the development of Kohlberg's theory on stages of moral development [2].

Kohlberg built upon Piaget's theory by including the impact of justice, equality, human rights and societal welfare. Kohlberg reasoned children are influenced by these factors as they grow older and develop a greater understanding of the "world" around them and their function in this society. Kohlberg outlined six stages of moral development which fall into three levels (preconventional morality, conventional morality, and postconventional morality). The two stages under preconventional morality are obedience and punishment orientation, and individualism and exchange. In this first level the child considers ways to escape punishment and how to benefit from a situation. The second level is conventional morality, which contains stage three, good interpersonal relationships, and stage four, maintaining social order. In this level the child begins to examine the labels applied based on actions (e.g., good vs. bad), and the rules of society. The third level, postconventional morality, is comprised of stage five, social contract and individual rights, and stage six, universal principles. In the third level moral development begins to become more insight oriented and socially conscious. The idea of social contracts and over arching ethical considerations and principles enters into the decision making process [1]. While Kohlberg's theory is more holistic than Piaget's theory, it is not without criticism. One such criticism directed to Kohlberg's research comes from Carol Gilligan [3]. Gilligan found Kohlberg's research to be heavily weighted based on gender, as the participants in Kohlberg's studies were predominately male. Conversely, subsequent theorists criticized Gilligan's work for its feminist approach [4].

Gilligan suggested care, as opposed to justice, as the center of moral development and ethics in children. As a result, Gilligan labeled her theory stages of ethical care, rather than referring to them as stages of moral development. Unlike Kohlberg, Gilligan does not assign age brackets to the stages, and she added the dimension of transitions between stages. The stages are preconventional, conventional, and postconventional. The preconventional stage relates to a goal of surviving, and is followed by the transition from self serving to more awareness of a responsibility to others. Once the transition occurs, the individual enters the conventional stage and gains an understanding of the intrinsic value of self sacrifice. During the transition following the conventional stage, the child develops an understanding of who they are as a person and what they deserve from society and life. The final stage, postconventional, is best characterized as lack of nonviolence, and the child has internalized the importance of doing no harm and not being harmed. Gilligan argued that the concept justice did not receive enough attention in Kohlberg's model. Gilligan contributed further to Kohlberg's ideas of development by including the impact of history and roles. Another factor which set apart Gilligan's work from Kohlberg's lies in the basis of the theory. Kohlberg built upon the work of Piaget and his theory of development, whereas Gilligan recognized Erik Erikson's stage model of development as an influence. A final criticism of Kohlberg's work is the way in which the data is reported; the data is often cited as sounding too pristine or adult to be a direct response of a child.

Elliot Turiel explored further into Kohlberg's theory of moral development by focusing his research on anomalies found within the stage sequences. Turiel and his fellow researchers conceptualized their work as domain theory. Domain theory explored the impact of social experiences, social events, and observations which contradict reasoning. Turiel referred to conventional issues and moral issues and the reasoning which occurs when a child is presented with a circumstance which requires a verging of the two ideals. This varied from Kohlberg as Turiel postulated these two are parallel, as opposed to a single entity. Turiel adds that judgments and justice might vary in social situations.

Relevance to Childhood Development

The development of ethics in children is of particular interest to parents and professionals who work with children. Understanding a child's ethical reasoning gives insight to the choices they make and their behavior. This is especially helpful to parents and guardians who are working to build strong ethics and morality in their children, as well as school personnel and mental health clinicians.

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Ethnic Identification

►Bicultural Identity

Ethnic Tradition

►Cultural Difference

Ethnicity

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Synonyms

Culture; Race

Definition

Refers to a sense of self-based on cultural traditions and racial group membership.

Ethnic identity consists of three distinct parts: ethnic behaviors, affirmation and belonging, and ethnic identity achievement. Positive Identification with one's ethnic group tends to correlate with higher self-esteem, decreased depression, better mental health and decreased drug use.

Relevance to Race and Culture

Ethnicity is often used interchangeably with culture and race. Culture constitutes values, tradition, and worldviews that have been transmitted over generations. In other words, any group that shares a theme or issue such as language, gender, ethnicity/race, spirituality, sexual preference, age, physical issues, socioeconomic status and survival after trauma. One can have multiple cultural or ethnic identities simultaneously.

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Ethnocentrism

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Definition

Ethnocentrism is the act of judging another culture from the perspective of one's own. The other culture is viewed as inferior when compared to one's own. One's own perspective is judged as right while the other is judged as wrong or less than.

Description

The term, ethnocentrism was first coined by William Graham Sumner in 1906 [4]. In this writing he discussed the concept of between group fighting. He believed that the evolution of warfare was due to ethnocentrism and xenophobia. He presented the notion that warfare is possible because one group sees itself as superior and better while viewing the other group contemptuously.

Everyone is born into a particular culture and has learned ways of living that include language, customs, values, beliefs, religions, etc. It is inevitable that these attitudes be adopted as normal. When confronted with new and different ways of thinking, these new and different ways will be viewed as unusual; even odd.

Ethnocentrism is when this view does not only entail a perception of it being different, unusual or odd, but wrong or inferior as well. Studies in the social sciences, especially anthropology, strive to rid itself of ethnocentric views through the practice of cultural relativism, a concept defined by Franz Boas. In this regard, aspects of your own culture are to be judged or understood only in regard to one's own particular culture. Different ways of being are to be respected and valued, rather than judged. Cultural relativism suggests that is to be understood that there is no universal culture and/or way of doing things.

Throughout history we can see many instances in which ethnocentrism served as a driving force to enslavement; even genocide. An extreme example would be how Nazi Germans under the leadership of Adolf Hitler were under the impression that Jewish people were inferior. This led to the Holocaust. In addition, Imperialism is a very real example of ethnocentrism in practice. When European countries first began to visit the African Continent, they termed it, "The Dark Continent." This reference had many negative implications that are still believed today. From the ethnocentric standpoint, African countries were ransacked, people kidnapped, and sold into slavery. Those that remained were imperialized by European governments. Many were forced to stop wearing their traditional African clothes, using their native languages or using their traditional African names. This was all done because the people were seen as savages, because from the framework of the European culture and religion these differences made them appear to be inferior and judged to be unintelligent. Ethnocentrism is often a divisive force that can do harm.

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Ethyl Alcohol

►Alcohol

Etiological Attachment Theory

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Attachment can be defined as a strong affectionate bond that develops between the infant and the caregiver. From an etiological perspective, this attachment bond ensures that the infant maintain close proximity to the caregiver when she/he feels threatened in order to promote the chances to survive. According to the attachment theory, early experiences with their caregivers create the way in which children interpret and make sense of subsequent experiences (i.e., working models of attachment, or the internal representation of relationship). An attachment relationship also provides a sense of internal security and confidence in both self and others. However, this sense may not be stable over the life span and can be challenged by neurophysiological, hormonal, and cognitive changes which occur during development.

Four patterns of adaptations have been identified, all of which result during early infant-parent relationships [1]. The "secure pattern of attachment" (B) is used to described an infant who uses the caregiver as a secure base of exploration. These infants readily separate from an attentive caregiver. As they grow older, they express their emotions directly to others and seek help from others. The "avoidant attachment" (A) is associated with an early experience of being rejected or ignored by their caregivers. Children with this attachment history learn to inhibit emotional signals and tend to avoid emotionally charged situations. Infants with "anxious-resistant" pattern (C) of attachment tend to become chronically vigilant toward their activities; they often show signs of distress in order to elicit caregiver's attention. As they grow older, children with this attachment pattern are often overly anxious and impulsive. The C pattern of attachment occurs as a result of having caregiver who is not consistently available or responsive. Infants with disorganized patterns of attachment (D) have been described as having no clear organized attachment strategy. In the Strange Situation, they show old and contradictory behavior pattern.

Assessing Attachment in Children and Young People

There are two approaches to the assessment of attachment, both of which are grounded in the original model proposed by Bowlby and Ainsworth but which differ in their development of the theory and hence their analysis of the

information gathered by using the available assessment procedures. The two systems are referred to here as the ABCD model (e.g., [7, 46, 63]) and the Dynamic-Maturational Model (DMM) of attachment and adaptation [9, 10, 13, 16, 19]. Both systems begin with the ABC classification of infant attachment behavior proposed by Ainsworth [1] but differ in the ways they explain the behavior of children from unsafe, sometimes dangerous, backgrounds. In particular, the ABCD approach employs a disorganized category (Type D) whereas the DMM expands the Type A and C categories to account for both the degree of threat and the maturation of the child. No elaboration of attachment theory is given here but these differences appear to be increasingly important in the light of recent criticism that the ABCD model should be expanded in order to account for both developmental and environmental changes [60].

Putting the differences in theory aside, there is general agreement about the form assessments should take for children of differing ages and this will be the focus of the remainder of this section. The issue of interpretation is not covered but such is the difference between the two systems that a comparison of their empirical results, even when using the same measures, can be extremely hard.

What is Being Assessed?

Attachment is described in terms of those aspects of the relationship between infants and their main carers that function to protect the child from danger. Hence what is assessed is the child's self protective strategy [18]. Bowlby and Ainsworth established that infants form attachment relationships with a select number of people, and that children prioritize these people in a hierarchical fashion with a primary attachment figure at the top. In the pre-school years the observational measures assess the self protective strategy of a particular child with a particular attachment figure. Children, like adults, can have different strategies with different people (e.g., comfortable and trusting with mother; anxious and defended with father). At some point in development attachment strategies become generalized to take in dangers encountered outside of the home so that by adulthood the Adult Attachment Interview (AAI) provides a more global assessment of an adult's state of mind with regard to their childhood attachments [17, 44]. Quite how and when this generalization takes place is not totally clear but assessments of children aged 6 years and beyond are increasingly likely to incorporate general as well as more person specific strategies.

Who is an Attachment Figure?

For young children, in particular, it is important to identify who among the adults in their life counts as an attachment figure. Howes [35] defined an attachment figure as follows:

- Provision of physical and emotional care
- Continuity or consistency in the child's life
- An emotional investment in the child

As a rule of thumb a good question to ask is: "who looks after the child at night?"

The Need to Assess People When They are Under Moderate Stress

Attachment seeking behavior at any age is activated when we are anxious and feel unsafe. Hence an essential feature of any procedure is that it induces moderate stress in the subject; that is stress high enough to activate self protective behavior but not so high as to lead to panic. Of the procedures outlined below, the separation and reunion procedures with infants and children up to about 4 years of age do this extremely well. On the other hand some play based procedures may not always induce enough stress for the attachment behavioral system to be fully activated. The stressor in interviews, with children and adults, is produced by asking subjects questions about intimate and potentially threatening aspects of their relationships (e.g., "Tell me about the first time you slept away from, home").

A Developmental Approach

Bowlby delineated four phases in the development of attachment behavior; three occurring in the first year of life and the fourth beginning somewhere around the beginning of the fourth year [4]. While there is flexibility in these phases they do represent attachment milestones and have been updated in the light of more recent developmental research by Marvin and Britner [47].

As attachment behavior in humans, as in many other creatures, is a product of experience with specific carers over time, it does not become organized until around 9–11 months. There then follow significant shifts in children's development at around 37 and 72 months and again at puberty and late adolescence. These changes determine both the ability of children to employ increasingly sophisticated ways of processing information about attachment relationships and, consequently, the types of assessment procedure available to professionals. These can be clustered as follows.

Parent-Child Observation

Used from Birth Onwards

Assessment in the first 37 months of life is restricted to observation. In the period of attachment formation (roughly the first 9 months) there is a necessary focus on parent (typically mother) child interaction. Available procedures for assessing carer-child interaction include the CARE-Index for use with children aged 1 day to about 48 months and the Lausanne trilogue play paradigm [28]. The latter is of interest because, while it does not provide a direct assessment of attachment in its current form, it is focused on the mother-infant-father triangle and can be extended to include a second child. Both are play based assessments which means the level of stress on the child is too low to activate attachment behavior. However in the toddler period parents are faced with the problem of keeping mobile children safe, which means the parents and children have to establish who is in control. This is relevant to attachment behavior because it combines the child's safety with conflict resolution and the management of anger [34].

Although Ainsworth began her pioneering work on assessment by using naturalistic, home based observation, the continuation of this tradition has been surprisingly patchy with the majority of efforts going into the laboratory based strange situation procedure (SSP; below). One exception is the attachment Q-set which is an itemized observational measure for use with preschoolers in their own homes consisting of 100 statements about the child's attachment behavior. These are then sorted by a carer or observer into piles denoting characteristics that are least like and most like the subject child [62].

Validity

The infant CARE-Index (0–15 months) is one of the most extensively validated of the DMM procedures with studies of both typically developing and at risk populations of children (e.g., [11, 12, 14, 20, 22, 49, 58]). When compared with results from the SSP, Q set ratings by parents showed a poor match but trained observers were able to distinguish insecure from secure children but not different types of insecurity ([61, 62]; see [54], for a review).

Separation and Reunion Procedures

The classic measure of infant attachment is Ainsworth's SSP which was originally devised to assess the attachment behavior of children aged 11–15 months [1]. The SSP requires a video suite with one way window, camera and three people (a manager, stranger and camera operator). Mother or other carer and child proceed through eight 3 min episodes designed to increase the stress on the infant, culminating in episode 6 when the child is left entirely alone. Considerable attention is paid to the child's behavior on reunion as this frequently lays bare what the child has learned to expect from his or her mother when he is anxious (the internal representational model of attachment).

The SSP is also used to assess attachment in children up to the age of about 60 months although interpreting attachment behavior is particularly difficult in the transition from infancy to toddlerhood (15–20 months) and again at 48 months onwards where the procedure is not always stressful enough to elicit attachment seeking behavior.

The available systems using the SSP are as follows: Ainsworth ABC for infants [1]; the addition of Type D for infants [46]; the pre-school ABCD system [6] which evolved from a system developed for 6-year olds [43]; for review see [56]; Crittenden's DMM approach for infants [9, 10, 12] and for pre-school children [15].

Validity

The original Ainsworth ABC approach for infants has been extensively validated and represents the gold standard against which all subsequent measures have been developed. There is less agreement concerning the extension of the SSP to older children and to those from at risk backgrounds (typically neglected and abused children) [55] although the DMM approach may be better able to discriminate between risk/ low risk populations [21, 52].

The Move to Re-Presentation: Doll Play

A significant developmental shift is in train by about 37 months, described as the move to representation [45]. What this means is that children are able to re-present to themselves and other people how they think about their relationships with attachment figures using appropriate mediums such as doll play, drawing, story telling and so forth. This extends the range of procedures from the observation of behavior to approaches that try to tap into the world in a child's head; both real and imaginary. A variety of approaches have been tried, some of which are given here.

The separation anxiety test (SAT) was devised by Hansburg [33] for adolescents and then developed for use with children aged 4–7 by Klagsbrun and Bowlby [39]. Several studies have used this procedure with children aged between 6 and 12 years (e.g., [8, 45, 66]) and it has recently been extended for use with adults [30]. Related measures are the thematic apperception test (TAT) and tasks of emotional development (TED) (e.g., [38, 48, 64]).

A variation on this approach is the Narrative Story Stem technique; a doll play exercise in which the interview, using a few simple props, sets up the beginning of a story (the stem) and then asks the child to "show and/or tell me what happens next." Story stems have been used by a number of investigators to assess children's representations of attachment and are commonly used with children aged 37 to about 84 months (see [25]).

Other procedures include showing 6 year old children a family photograph [45], asking school aged children to draw their family [8, 29, 41, 42], observing sibling groups in doll play (Mueller, 1989) and adapting the SSP for sibling groups [26].

Validity

All but one [26] of the procedures outlined above use the ABCD classificatory system and, although they all have useful clinical applications, success in validating representational measures of children's attachment to the standard of the SSP has been modest. In the school years, the SAT appears a relatively weak measure of attachment when compared with narrative story stems or interviews [37] and while most of the Story Stem procedures distinguish between secure and insecure attachment they do not, with the exception of The Manchester Child Attachment Story Task (MCAST), differentiate between types of insecurity (MCAST: [31, 32, 53, 65]) and largely fail to identify Type C [5].

The School Years and Introduction of the Interview

The assessment of attachment in the school years has proved problematic. There are a number of reasons for this including gaps in understanding attachment in this developmental period, compared with infancy and adulthood, and the fact that a lack of comparable assessments has made validating new procedures very difficult.

In terms of social development the child's world expands to include peers, best friends, teachers and other significant adults and most procedures try to include these areas in assessment. Neurologically the ability to separate information co-constructed with attachment figures (typical in the preschool years) from information generated by the self begins at about 6–7 years of age and is complete at about 15 years. This shift means that assessments can make increasing use of an interview format that relies less and less on props until the procedure is very similar to the question-answer approach used with an adult.

The interpretation and classification of interviews with this age group is basically derived from the system of discourse (styles of speech) analysis developed for use with adults and the AAI [17, 44]. Hence, coherence of speech is taken to correspond with coherence of mind so that analysis includes not just what interviewees say about attachment relationships but how they think about them (i.e., the mental processes by which the child or adult includes or excludes information). Unlike the speech patterns of speakers whose interviews are assessed in terms of insecure Types A and C, those in Type B (balanced or secure) attachment do not distort (by omission, exaggeration or manipulation) information about difficult or threatening experiences with attachment figures (In the ABCD model the Type D disorganized category drops out in the school years and is replaced in adulthood by the lack of resolution of loss and trauma (see [40, 51, 63]). Quite how this change occurs is not always clear. The DMM makes little use of disorganization at any stage of development, focusing instead on more complex forms of Types A and C organization which may be rendered more or less adaptive (self protective) by loss and/or trauma.).

Child attachment interviews have been used by a number of groups using the ABCD model (e.g., [3, 59]) and clearly demonstrate the validity of applying AAI adapted discourse analysis to children.

Crittenden has developed a School Age Assessment of attachment (SAA) derived from the SAT in which the interviewer shows a series of attachment related pictures (such as a child is bullied or the child's mother is being taken to hospital) and asks the child to first tell a made up story and then to talk about a time "this has happened to you."

Validity

The application of discourse analysis to child attachment interviews produces the ABCD distributions similar to those of adults [3, 59]. However, as with narrative stems, the Type C strategy is less common than expected and it has proved difficult to agree on the coding of "disorganization" [2]. Crittenden's SAA has one preliminary validation study in preparation [23]; see also [24].

Adolescence

By adolescence most assessment procedures focus on an interview format which uses questions adapted from the AAI together with the AAI discourse analysis. Although there has been some experimentation with picture prompts, similar to the SAT and Crittenden's SAA, to assess adult attachment (see the Adult Projective, [30]) this has not, as far as we know, been pursued with adolescents.

A self report questionnaire for use with adults, designed by Hazan and Shaver (1987), has been adapted by an Israeli team and administered to children age 6–12 years [27] and a simplified version of the same questionnaire has been used in a series of studies by Muris and colleagues (see [50] for a review; see also [36]). Cassidy has produced an interview to assess a child's self image [5].

Compared with other procedures self report scales offer a simplified means of assessment but the information they collect is necessarily limited to conscious representations of attachment and there is an ongoing debate about what they actually measure (see [57]).

Summary

Procedures to assess attachment in children and young people are necessarily determined by the developmental age of the child with the most progress having been made by the pioneering observational methods applied to infants and, to a lesser extent, pre-school children. The assessment of attachment in the school years is still under construction but the favored procedure appears to be a blend of the observational approaches used with the under fives together with the discourse analysis devised for use with adults. By mid adolescence satisfactory results can be obtained by minor modifications of the AAI. Hence attachment assessment might be said to be at it strongest at either end of development (infancy and early adulthood onwards) and weakest in the period from about 5 years to puberty.

The need to adjust procedures to match the development of the child holds a mirror to a fundamental debate about how attachment should be construed in terms of both developmental maturity and the increase or decrease of risk in the environment. Of particular importance are the competing paradigms referred to here as the ABCD and DMM approaches. The former is more extensively used but may be less equipped to discriminate between types of insecurity and indeed differentiate between children from at risk compared with safe backgrounds. Comparing the results from studies using these different models is currently extremely difficult.

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Evacuation

►Purging

Evaluation

►Assessment

Evaluation Anxiety

►Test Anxiety

Evolution

►Darwin's Theory of Natural Selection

Exceptional Education

►Special Education

Excessive Shyness

►Social Anxiety

Excretion

►Purging

Executive Control

►Working Memory

Executive Dysfunction

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Synonyms

Executive function; Executive function difficulties; Executive function disorder; Executive function dysfunction

Definition

Executive dysfunction refers to the problems that stem from impairment to cognitive processes located in the prefrontal cortex (PFC) of the brain, known as executive functions. Impairment to this area may result in difficulties in advanced cognitive and behavioral abilities.

Description

As the name implies, executive dysfunction indicates the difficulties that arise from the impairment of executive

functions. It is difficult to operationalize executive functions; however, they have been equated to both the executive of a company and the conductor of an orchestra because of the organizational and managerial skills that they utilize over constituents [6]. Although there is some disagreement in the literature regarding which cognitive and behavioral components actually make up executive functions, some of the generally agreed upon abilities are as follows: self-monitoring and regulating behavior, initiating and completing novel tasks, setting and achieving goals, planning, organizing, utilizing working memory, maintaining and shifting attention, flexibly changing tasks, inhibiting undesired behaviors, and controlling emotions [2, 3, 6, 9, 14]. Higher order components of language and the control of fine motor skills have also been attributed to executive functions [6].

Ironically, much of what science has learned about executive functions is through what is known of executive dysfunction. Executive dysfunction may materialize from congenital abnormalities or disorders, traumatic or acquired brain injury, or brain lesions [14]. Executive dysfunction may result if damage occurs in one of the frontal-subcortical areas of the anterior most regions of the brain, known as the prefrontal cortex (PFC) [4, 6]. The dorsolateral PFC controls cognitive and behavioral spontaneity, maintaining and shifting attention, organizing, performing multiple tasks simultaneously, retrieving memories, sustaining attention, and inhibiting responses. Damage to this area may result in inattentive behavior, the inability to quickly shift attention or tasks, impulsiveness, unorganized behavior, and difficulty with long-term memory [4, 15]. The lateral PFC controls processes such as selective attention, working memory, cognitive and behavioral monitoring, language, and processing novel experiences. Damage to the lateral PFC may result in inattentiveness, difficulty with working memory tasks, the inability to be self-aware, and resistance to new experiences [5, 6, 8]. The lateral orbitofrontal cortex is involved with social and emotional aspects of behavior such as tactfulness, sensitivity, attention, and activity level. Damage to this area may be related to increased levels of irritability, inappropriate responses to social cues, aggression, and the echoing of others' behavior [4, 8].

Relevance to Childhood Development

The development of frontal lobe activity begins to emerge as early as infancy and continues to develop throughout childhood and adolescence by the growth and pruning of synapses [3]. Neuropsychological assessments have been utilized to measure the components of executive functions in children; however, these tests are often developmentally too difficult to use with children [7]. Nevertheless, researchers have recently begun to realize that problems with the development of executive functions in children may significantly impact several childhood disorders [1]. Attention deficit hyperactivity disorder, marked by problems with inhibition and the processes of attention, has been linked to executive dysfunction in children [12]. Executive dysfunction has also been associated with children with learning disabilities because of difficulties with self-regulation, problem solving, cognitive flexibility, and organizing and prioritizing stimuli [10]. Executive dysfunction has also been implicated in nonverbal learning disabilities because of weaknesses in fluently shifting environments, adapting to novel situations, working memory, self-regulation, and attentional control [13]. In addition, executive dysfunction has been associated with children diagnosed with autism spectrum disorders (ASD). Children with ASD may have difficulties with: fluently shifting attention and tasks, planning, cognitive flexibility, novel situations, appropriately responding to social cues, regulating social interactions, and nonverbal behaviors [11]. In the future, further knowledge about executive dysfunction and its impact on child development is needed for the advancement of successful behavioral, psychological, and academic interventions.

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Executive Function

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Synonyms

Central executive; Cognitive control; Executive dysfunction; Executive system

Definition

Executive functions refer to the array of cognitive processes that control and monitor specific cognitive capacities and behaviors. Located in the prefrontal cortex (PFC), executive functions are the processes that make the human brain a unique, organized, and sophisticated structure.

Description

There is no global or overarching definition of executive functions due to the abstract and complex nature of the term. In addition, it can be difficult to directly measure executive functions since their role is to maintain more basic cognitive and behavioral skills, and they cannot be tied to any one measurable skill. Historically, most of the empirical information gained regarding executive functions has been obtained after traumatic and acquired brain injuries or brain lesions to the PFC, and the deficits that have resulted from that damage [15]. However, with the advent of various neuroimaging techniques in recent years, such as position emission tomography (PET), magnetic resonance imaging (MRI), and functional magnetic resonance imaging (fMRI) a great deal has been learned about the responsibilities of the executive functions [4].

Due to their roles, the executive functions have been equated to both the executive of a company and the conductor of an orchestra because of the organizational and managerial skills that they utilize over constituents [10]. The executive functions can be considered metacognitive instead of cognitive since these functions do not refer to any single mental set, but rather impart an overlying organization for specific skills.

There are several constructs that are purported components of executive functions. Brain imaging studies have determined that self-monitored, purposeful, and regulated behaviors, the ability to inhibit behaviors, and the control of emotions are located in the PFC [4, 13]. Similar constructs, such as goal setting and planning are also thought to be components of executive functioning [13]. Goal setting encompasses the following abilities: initiating and planning for novel objectives, modifying or changing behaviors due to unforeseen problems, and utilizing strategic behavior to accomplish goals [3]. Planning allows individuals to think of a solution to a novel problem and utilize working memory and the ability to inhibit extraneous stimuli to accomplish the plan. Attentional control is another component of executive functioning and refers to the constructs of selective attention, sustained attention, and response inhibition. These constructs allow individuals to focus on specific stimuli, keep that focus, and refrain from responding automatically or inappropriately [3]. Cognitive flexibility is another constituent that refers to the capacities of working memory, attentional flexibility, and self-monitoring and regulation. Cognitive flexibility allows individuals to temporarily store and manipulate information, easily switch focus among stimuli, and monitor and redirect one's own behaviors [3, 13]. The ability to deem our actions as a success or failure in response to our intentions is also a role of the executive functions [3]. Higher order components of language and the control of fine motor skills have been attributed to the functions of the PFC [10]. In addition, traits of emotional inhibition and response, such as tactfulness, sensitivity, and emotional affect, are also under the control of the executive functions [10, 15].

Within the literature, several models have been proposed to describe the specific interactions of constructs maintained by the executive system [8]. Stuss and Benson [16] illustrated a model that consisted of three components: motivation, the sequencing of information, and the control of those processes. Welsh et al. [18] clustered the

components of executive functions into three different factors representing speeded responding, set maintenance, and planning. Lezak [13] conceptualized executive functions into the four components of volition, planning, purposeful behavior, and effective performance. Boone et al. [5] utilized factor analysis to also specify three components of executive functioning, namely cognitive flexibility, speeded processing, and divided attention/short term memory. Brocki and Bohlin [7] identified three dimensions of executive functions that they interpreted as disinhibition, speed/arousal, and working memory/fluency. Busch and colleagues [8] established three factors of executive function including productive fluency/cognitive flexibility, mental control (working memory), and the self-monitoring of memories.

Neurologically, the processes of executive functions are widely associated with the anterior most regions of the frontal lobes, known as the PFC. Currently, the PFC is considered to be the best connected region of the cortex, directly connected to every functional unit of the brain [10]. Because the frontal lobes are not coupled to any individualized or concrete process, early theorists of cognitive function denied the frontal lobes any real significance, often referring to them as the "silent lobes." However, in recent years the frontal lobes, specifically the PFC, have received a wide array of attention [10].

The components of executive functioning are divided among several frontal-subcortical areas. The dorsolateral PFC, the last area to myelinate in the human cortex, is involved with spontaneity of thought and action, maintaining and shifting cognitive attention, organizing strategies, performing dual task activities, retrieving memories, sustaining attention, and inhibiting responses [6, 17]. The lateral PFC controls processes such as selective attention, working memory, monitoring, language, and novelty [9, 10, 12]. The lateral orbitofrontal cortex is involved with social and cognitive aspects of behavior such as tactfulness, sensitivity, attention, and activity level [6, 12].

Relevance to Childhood Development

Historically, it was believed that executive functions emerged only during late adolescence, and therefore played no significant role in normal and abnormal brain development in infancy and early childhood. However, we now know that the development of frontal lobe activity begins to emerge as early as infancy and continues to develop throughout childhood through the development of new synapses and the pruning of old ones [4]. There are major growth periods within the PFC the first of which is birth to 2 years, followed by another growth spurt from 7 to 9 years, and a final growth period occurring from 16 to 19 years [1, 3]. With ongoing maturation, children tend to also obtain the capacity for efficient processing of information at specific growth periods in their development. Due to varying growth spurts of information processing and executive functioning skills, there is partial development of the components of executive functioning in young children that suggests a limited ability to utilize executive skills much earlier than had previously been considered [3].

Recently, researchers have begun to recognize that executive function difficulties, or executive dysfunction, may play an important role in early childhood disorders and normal brain development [2]. Deficits in executive functions are primary characteristics in numerous disorders of childhood, such as attention deficit hyperactivity disorder, learning disabilities, Tourette's disorder, tic disorders, acquired and traumatic brain injury, and autism spectrum disorders [14]. As a result of this realization, researchers have started utilizing assessments of executive functioning during neuropsychological testing. However, many of these assessments are inappropriate and difficult to use with children. Many of the tasks touted to measure executive functioning were created to be difficult, and thus are developmentally inappropriate for use with children [11].

The emergence of executive functions in childhood does not appear to be a gradual progression, but rather appears to correlate with the age dependent growth spurts of the frontal lobes [2]. Different factors of executive functions appear to emerge at different stages of development. Welsh et al. [18] found peaks of executive functioning that correlated with adult-level performance, appearing at the ages of 6 years old, 10 years old, and adolescence. Organized, strategic, and planning behavior was detected by age 6. The functions of searching in an organized manner and behavioral and cognitive inhibition were seen to mature by age 10. The ability to fluently use language, operate a series of motor tasks in a sequential pattern, and complex planning skills were not identified as being to adult levels until adolescence. These spurts of prefrontal growth during childhood and adolescence make it especially difficult to measure various executive functioning abilities in children, even though deficits in these areas can be apparent [11].

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Executive Function Difficulties

►Executive Dysfunction

Executive Function Disorder

►Executive Dysfunction

Executive Function Dysfunction

►Executive Dysfunction

Executive Functioning

►Working Memory

Executive System

►Executive Function

Existentialism

►Humanistic Perspective

Expectancy Effect

►Self-Fulfilling Prophecy

Experimenter Bias

►Pygmalion Effect

Explicit Memory

►Declarative Memory

Exploration

►Ainsworth's Procedure

Exposed

►At Risk

Expressive Aphasia

►Broca's Aphasia

Expressive Aphasia, Fluent Aphasia, Infantile Acquired Aphasia

►Childhood Aphasia

Expressive Dysphasia

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Synonyms

Agrammatic dysphasia; Broca's dysphasia; Cortical motor dysphasia; Primary motor dysphasia

Definition

Expressive dysphasia refers to impaired language production caused by some form of brain damage or dysfunction [4]. Nonfluent output or speech disturbance is the prominent feature of expressive dysphasia, which is characterized by scattered, slow, and hesitant speech with marked disturbances of rhythm, grammar, and articulation. Patients also present with difficulty in finding and/or choosing the right words. Impairment in reading also is exhibited with a halting and jerky flow; disturbances in writing are similar to those in speaking [2].

Description

The original terms of aphasia and dysphasia have different meanings, but in modern usage they are often used interchangeable. In general, aphasia is the preferred term over dysphasia to avoid confusion with dysphagia. Expressive aphasia/dysphasia, commonly known as Broca's dysphasia in the neuropsychology field, is seen as a type of language disorder impairing the ability to produce language. Language difficulties presented in expressive dysphasia are not caused by defects in speech or hearing organs or deficits in sensory or cognitive functioning, but due to brain lesions or developmental impairment in brain areas governing language production. These areas lie in the anterior regions of the brain, including the left inferior frontal region known as Broca's area involved in language expression [2, 4], which is often referred to as Broca's dysphasia. Expressive dysphasia involves the frontal lobe and underlying subcortical white matter [5]. In addition, lesions within the head of the caudate nucleus within the basal ganglia can produce Broca's-like dysphasia [1].

Several common deficits are associated with expressive dysphasia, including poor programming of oromotor movements used to produce speech, agrammatism, anomia, and articulation difficulties [4]. Individuals with expressive dysphasia display impaired spontaneous speech, word finding difficulty, and poor automatic naming and repetition. Their language production is often brief with words omitted and changes in the grammatic function of words. Grammatical complexity is often lacking from their language, and their reading comprehension is inadequate for sentences that require processing of grammatical words [3]. In addition, their reading lacks a steady rhythm and is fragmentary with slurring and occasional mispronunciations. However, while patients with expressive dysphasia may have impaired comprehension of syntax, their comprehension of single words and short phrases is relatively preserved [3]. Their naming of objects is generally impaired but their performance may be improved by prompting with a context or phonemic cueing. Despite these difficulties with language production, individuals with expressive dysphasia are aware of their mistakes and often attempt to correct them. In addition, their comprehension of written and verbal instruction is intact, and their speech that does emerge is meaningful [2]. They are able to comprehend speech much better than they are able to produce it.

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Expressive Group Therapy

►Play-Group Therapy

Expressive Language

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Synonyms

Expressive vocabulary test, second edition; Verbal skills

Definition

Expressive language refers to the way a child expresses him/herself for everyday wants, needs, and feelings. Spoken, written, and body language, including facial expressions and sign language, are all abilities considered to be expressive language skills.

Description

Language and the expression of such is a difficult term to describe because it has a vast connection with children's developmental skills, education, and experience. In essence it is about describing how one learns language and learns how to express him/herself through language, including body language and facial expressions. According to Wise et al. [3], "Expressive vocabulary knowledge includes accessing semantic knowledge in addition to phonological representations; expressive vocabulary knowledge may be more strongly related to word identification performance than is receptive vocabulary knowledge" (p. 1095).

Expressive language difficulties include problems with word retrieval, limitations in knowledge, sentence formation, subject-verb agreement, and grammatical morphology. Also, genetics may be a predictor of expressive language problems [2]. Furthermore, students with minimal vocabulary could have a hard time understanding or identifying words that are not often used or words that they have not seen [3]. Additionally, there is not much evidence to suggest that problems with expressive language occur unaccompanied; in fact these problems can be associated with a lack of language comprehension and/or exposure to variations of words and phrases [2].

DSM-IV Disorders

Expressive language disorder and receptive-expressive language disorder comprise categories in the Diagnostic and Statistical Manual of Mental Disorders [1]. Expressive language disorder includes impairment in development of expressive language as measured by scores on a language assessment, and this impairment interferes with academic, occupational, and/or social communication. Mixed receptive-expressive language disorder includes impairment in both types of development which are significantly below average as well as all of the other criteria that expressive language disorder requires. The difference is that children with this mixed type also have developmental delays in receptive language [1]. The severity of these disorders varies based on the child's abilities and spectrum of understanding language. Due to the variations in children's abilities, it is essential that all aspects of a child's abilities be thoroughly tested and understood before making such a diagnosis.

Development

The development of expressive language is as varied as the definition. Difficulties could begin as early as age one but are more substantially noticed by age 4. At this age children usually understand certain agreement morphemes through grammatical judgment skills [2]. However, these skills require a degree of metalinguistic abilities, which at peak levels require acute sensitivity and specificity to master and are not usually seen until age 6 [2]. Furthermore, research indicates that knowledge of vocabulary is related to reading comprehension [3], which develops around age 6. The variations in abilities make it difficult for researchers to accurately assess specific expressive language impairments, which indicate that more research is required to fully understand the scope of possible problems with expressive language. It appears that disruption to the development of any of a large collection of abilities (e.g., knowledge base, vocabulary, reading, phonemic recognition of spoken words, word identification) can lead to expressive language delays.

Assessment and Treatment

The measures used to classify a child's expressive language abilities have become more advanced over the years and have allowed researchers to better diagnose language disorders [2]. One of the biggest obstacles in using scores to categorize a child's abilities is that testing expressive language impairments is not always as important as testing comprehension, in order to ensure that the child has the knowledge required to complete the test [2]. Treatment approaches often include instruction in word meaning, grammar, context of word use, and numerous opportunities for practice; another approach called "recasting" involves speaking to the child through mimicking his/her

speech with similarly appropriate responses, which allows the child to gain contextual information and distinguish between his/her language and the new responses, thus allowing him/her to develop a greater language knowledge base [2]. Children with language difficulties often receive services from the school's speech-language pathologist to work on specific goals and objectives.

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Expressive Language Disorders

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Synonyms

Communication disorders

Definition

A language disorder where there is difficulty in expressing one's self verbally and/or in writing due to inability to retrieve and organize words.

Description

Expressive language disorder, unlike *speech disorders* where the individual has difficulty pronouncing speech sounds, the difficulty lies with expressing one's self due to the inability to retrieve or recall words and organizing them in a meaningful manner [1–6]. An individual with expressive language disorder is better able to understand what is being said to him or her than what he or she is able to express ideas or thoughts [5]. It is part of developmental language delay and can co-occur with *receptive language disorder* [1, 4, 5]. In expressive language disorder, the difficulty lies within the areas of the brain responsible for language processing thus the individual has difficulty processing and successfully making the connection between words and meaning [4]. Due to this, individuals with expressive language disorder will become frustrated and may act out behaviorally due to this [5]. Thus, leaving individuals with expressive language disorder at risk of developing psychiatric disorders due to the emotional and behavioral issues that can stem from the frustration that they experience [2].

Signs and Symptoms

The most common signs and symptoms of expressive language disorder, although each individual will present them differently, include: vocabulary below what is expected for age, difficulty in naming objects (i.e., cup, dog, etc.) or misnaming objects (*dysnomia*) due to difficulty in being able to retrieve words, inability to express ideas or thoughts, not talking much, often or at all, difficulty communicating and interacting with others, difficulty with pronouncing words, difficulty with overall expressive language tasks, particularly complex tasks, to include rules of grammar or *syntax*, change in verb tense or *morphology* and word meaning or *semantics* [2, 3, 5]. It is recommended that one refers back to his or her family physician or pediatrician due the symptoms can mimic those associated with serious medical conditions such as stroke [2].

Causes

Expressive language disorder can be developmental, acquired or genetically based [2, 5, 6]. Developmentally based expressive language disorder is commonly seen in children [5, 6]. Often the signs and symptoms can be picked upon early when the child is not meeting developmental language milestones (severe) or will be discovered once the child has started school and experiences problems with academics (mild) [5]. Acquired expressive language disorder is more commonly seen in the elderly [5, 6]. This is due to acquired expressive language disorder is the result of a medical condition such *aphasia* (the loss of language skills and abilities already acquired), stroke, brain injury or damage, exposures to toxins (i.e., substance abuse, lead, etc.) [2, 5, 6]. There are other cases where the cause is due to inherited conditions or genetics as seen in such disorders as Autism and Down Syndrome [1, 2]. Boys tend to be diagnosed more so than girls with expressive language disorder [2]. It should be noted that expressive language disorder can and does occur in an individual with normal intelligence as well as those with below normal intelligence as seen with *mental retardation*, *congenital disorders* (i.e., *Cerebral Palsy*) and *pervasive developmental disorders* (i.e., *Autism*) [5, 6].

Diagnosis

Expressive language disorder is diagnosed via a battery of evaluations and tests [2, 4]. These often include observations, assessment of cognitive abilities, or psychological testing as well as psychometric testing, diagnostic speech and language as well as writing tests, and occupational therapy evaluations [2, 4]. Due to the emotional and behavioral issues that can and often result from the frustrations that are experience with not being able to express one's self, a psychiatrist may be consulted with in particular in the case of children and adolescents [2].

Treatment

There are several factors that will determine the kind of treatment one with expressive disorder will receive. These factors include medical history in case there is a need for medication, severity and prognosis of the disorder, individual's overall health status, age, and the individual's preference and expectations regarding therapies [1, 2]. Treatments for expressive language disorder include speech and language therapy, occupational therapy, and in some cases mental health treatment [1, 2, 4]. It should be noted that expressive language disorder does not go away with time, rather is a disorder that the individual will have to cope with for the rest of his or her life [5].

Relevance to Childhood Development

For one to be successful socially and academically, one must be able to express him or herself. Children with expressive language disorder do not learn language as quickly as their peers thus have difficulty expressing themselves [4, 6]. Thus, they may display poor social skills, withdraw or isolate, present with acting out behaviors or difficulty with imaginative play and picking up on or expressing such social cues as manners or engaging in a conversation [4]. It is estimated that about seven percent school age children are found to present with notable language deficiencies [1]. Due to these deficiencies, a child with expressive language disorder may struggle academically as well. Although many are able to speak when they start school, in school the child will struggle with such tasks as formulating words which are imperative when presenting an oral report, spelling, writing well which is crucial for such tasks as sentence structure, being able to take adequate notes and written composition which entails one to express abstract ideas as seen with writing an essay [2, 5]. The older the child becomes, the harder the school work will become which means the more difficulties the child will experience [5]. Children with expressive language disorders have a lot to say and want to share with others [5]. However, due to the nature of the disorder he or she may present worse off than what he or she may really be thus school personnel may develop misperceptions regarding the child's true abilities [4, 5]. This can lead the child to not like school and may reject the idea of learning without assistance [5].

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Expressive Therapy

▶Art Therapy

Expressive Vocabulary Test, Second Edition

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Synonyms

Expressive language

Definition

The expressive vocabulary test, second edition, is a brief measure of expressive language.

Description

The Expressive Vocabulary Test, second edition (EVT-2) is a brief measure of expressive vocabulary and word retrieval abilities for ages 2 years, 6 months and above. The test can be administered in less than 20 minutes. There are two parallel forms of the EVT-2: Form A and Form B. The manual reports a number of uses for the EVT-2, including the evaluation of language impairments and assessing the knowledge of the English language in non-native speakers. It can also be used as a screening measure for Expressive Language Disorders and can be used with the *Peabody Picture Vocabulary Test*, fourth edition (PPVT-4) to screen for mixed receptive-expressive language disorders [3].

The EVT-2 can be scored by hand or by using computer scoring software. The EVT-2 raw scores can be used to calculate standard scores, percentiles, normal curve equivalents, and stanines. In addition, the raw scores can be translated into age equivalents and grade equivalents. Standard scores can be based on either age-based or grade-based normative standards.

The EVT-2 was standardized in 2005 and 2006 on 5,543 individuals in the United States. The standardization sample was stratified according to 2004 Census data and was representative of the population of the United States in relation to race/ethnicity.

The EVT-2 has strong psychometric properties. The internal consistency (split half reliability) of the two parallel forms are 0.94 (Form A) and 0.93 (Form B). The test-retest reliability is 0.95. Additionally, the EVT-2 correlates highly with the PPVT-4 (0.82) [3].

Relevance to Childhood Development

The EVT-2 can be used to screen children and adolescents for language disorders and language delays.

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Expulsion

►Purging

Extended Families

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Synonyms

Joint family; Kinship group; Multigenerational family

Definition

An extended family is a family composition that includes in one household near relatives in addition to the nuclear family.

Description

The extended family has been categorized as many things in the research literature. Early researchers defined this family structure as a constellation of nuclear families across two or more generations [1]. Furthermore, it has been operationally defined as a three-generation structure comprised of related relatives: grandparents, parents, grandchildren, and sometimes a fourth generation [5]. However, the aforementioned description defines extended families as a compilation of nuclear families across generations. It should be noted that there are many other variations of the extended family structure. Extended family structures may consist of grandmother/grandfather, aunt/uncle, cousins, one-parent extended families, divorced families, and other kin relations [1]. Each variation operates differently depending on cultural and socioeconomic factors. For example, a Black child growing up in the African-American community may be surrounded by a kin organization including grandparents, parents, aunts, uncles, and cousins [6]. In addition, the Black child may be a part of a matriarchal single-parent extended family.

Extended family structures tend to be prevalent in non-Western societies and minority cultures (e.g., Hispanics, African-Americans, Caribbean-Americans, Asians). Although not the dominant familial structure in Western societies, this structure also plays a role in mainstream society. Many have argued that the formation of the extended family is indigenous to certain ethnic groups. However, the formation and sustainability of the extended family is often facilitated by historical, religious, socioeconomic, and marital factors [5, 6]. For example, people of Indian origin living in Durban, South Africa continue to live in extended family arrangements despite the government's housing development policies that prevent large groups of individuals from sharing residency. Indian

families in this community tend to follow the Mitakshara law which states that "joint families that constitute a coparcenary, who by virtue of association with their biological parents and grandparents, have the right to enjoy and hold the joint property, to restrain each others acts in respect thereof, not to burden it with debts and at their pleasure to enforce its partition" [5, p. 458]. Many families who continue to live within these households do so for familial obligations, safety, and financial reasons. It is often customary for newly married individuals to live within this setting for one or more years before branching out on their own. Interestingly, though couples may branch out on their own, they are often still connected with their extended families through proximity of residence [5].

In the Black community, the formation of the family is a byproduct of the interplay of historical factors such as slavery, marital and interpersonal factors such as divorces, single parenthood, and socioeconomic factors. The most important factor correlated with extended family formation is the persistent and high concentrated poverty of Black parents, especially single mothers [6]. In fact, the establishment of an extended family is one coping mechanism used extensively and disproportionally by Black households to respond to housing affordability and adverse economic circumstances [3]. Transitions in the life cycle may also affect the formation of an extended family. For example, the migration history and the socioeconomic status of the immigrant group may facilitate the formation and sustainability of this family structure. For example, the three-generation families among Cuban Americans have often been seen as the retention of cultural patterns and norms; however, the nature and selectivity of the exodus from Cuba have largely determined the high incidence of three-generation families in the population [4].

Extended families play a pivotal role in the rearing of children whose biological parents are otherwise disposed. Additionally, they offer emotional and financial support [2]. Furthermore, the involvement of extended family members in one-parent families facilitates the biological mother's participation in self-improvement activities (e.g., school and work), increases the quality of childcare, and reduces the negative effects of single parenting. Moreover, living within this family structure also offsets some of the negative effects of adolescent extramarital pregnancy. In addition, the presence of the sensitive grandmother in the home tends to buffer the infant against the influence of the insensitive mother. Extended families tend to be more effective when lines and boundaries are clearly defined. Confusion arises when this is not the case [2]. Although, household mergers can offset the cost of household expenditures, extended families can also reduce the quality of the home environment, by increasing crowdedness and thus limiting privacy [3].

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Extensor Plantar Reflex (Pathological) Toe Phenomenon

▶Babinski Reflex

Extensor Plantar Response or Extensor Response

▶Babinsky Response

External Motivation

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Synonyms

Extrinsic motivation

Definition

Motivation is the activation of goal-oriented behavior. When motivation develops from a source other than the individual, then that individual is externally motivated. Examples of such sources are money, trophies, grades, and complements. Punishments or other negative consequences can also be sources of external motivation.

Description

There are two types of motivation – external and internal. When individuals are motivated by outside sources, they are driven by external motivation. Outside sources may be tangible or intangible rewards. Tangible rewards may include stickers or toys. Intangible rewards may include complements or a round of applause from an audience.

Individuals who are externally motivated may not be interested in the actual task. Instead they may be interested in receiving the tangible or intangible rewards earned by completing the tasks. For example, children who are given allowances for completing weekly household chores may complete their chores, not because they enjoy completing them, but because they are externally motivated by their allowance.

Directly opposite of external motivation is *internal motivation*. Internal motivation accrues within an individual. An individual who is driven by internal motivation are motivated to complete a task without the incentive of receiving a reward. These individuals find satisfaction in completing the actual task.

Theories that are often connected to motivation are the following: *Social Theory* [1], *Transpersonal Theory* [2, 4, 5], *Achievement Motivation Theory* [3, 6, 7], and *Behavioral Theory* [8].

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Extinction

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Synonyms

Extinction burst

Definition

In both Classical Conditioning (also known as respondent conditioning) and Operant Conditioning (also known as instrumental conditioning), the term extinction refers to both a procedure and a behavioral process. Simply put, in Ivan Pavlov's Classical Conditioning, extinction refers to a procedure of presenting a CS, a conditioned stimulus alone, without a US, an unconditioned stimulus, after conditioning has transpired. In effect, this is a procedure of severing the CS–US association. An example would be that of the spoken word "constrict" as a neutral stimulus (NS) followed by a flash of light as a US presented to a person's pupils. After several pairings, the pupillary constriction would occur as a CR, a conditioned response to the spoken word as the word comes to function as a CS. Extinction would then consist of the word "constrict" repeatedly presented in the absence of the flash of light. As a behavioral process, extinction denotes the decrease in measures of the CR, the conditioned response, when the aforementioned procedure is in effect. That is, as a result of the conditioning just described, some measurable degree of pupillary decrease would occur to the spoken word-CS but as the CS were presented alone, the conditioned response of the pupil to the word would show orderly decrements, as a function of each solitary CS presentation [1, 2].

In the operant conditioning of B.F. Skinner, extinction also encompasses both procedure and outcome-process. As a procedure, this term envelopes the breaking or discontinuation of the contingency between an operant response and its formerly contingent consequence. Other writers have described extinction as the removal or unavailability of the reinforcer. In terms of a behavioral process, extinction pertains to a decline in the frequency of the operant response being measured when the extinction procedure is in place. An example would be that of a rhesus monkey lever pressing for a sip of juice. The lever press would be the operant response and the juice would be the consequence, in this case, a positive reinforcer. This contingent relation between response and consequence would maintain some

frequency of lever pressing by the monkey. If lever pressing no longer resulted in any juice, the discontinuation of the juice-reinforcer would be a procedure of extinction and the decline in the frequency of lever pressing that results would be the process of extinction. Under conditions of extinction, responding decreases and can eventually cease or merely return to its pre-reinforcement measures [2, 3].

In both classical and operant conditioning, extinction refers to a behavior weakening procedure and process for acquired or learned responses. Both a conditioned response and an operant that have reduced measures of magnitude or frequency as a result of extinction are said to be "extinguished." Extinction is neither a procedure nor a process performed upon or observed with unlearned behavior. Compare with habituation.

There are other similarities between the extinction process in classical and operant conditioning. In both, the extinguished response will typically display what is known as spontaneous recovery. In classical conditioning, if the CS is presented alone to the point that the CR no longer occurs to the CS and the extinction process is complete, if the animal or human goes through a period of time without any exposure to the CS, a subsequent presentation of the CS will again elicit a CR, albeit in somewhat weakened magnitude. If the CS is again presented alone, the CR will again extinguish but spontaneous recovery may reoccur in subsequent CS presentations following a recovery period in the absence of the CS. In these instances, the re-elicited CR is thought to be due to extraneous environmental events that were still functional as a CS and each subsequent extinction procedure extinguishes the CR to these other CSs. Spontaneous recovery is an expected outcome of the extinction procedure and process in classical conditioning. The boy who has acquired a fear of dogs from a bite can overcome his fear by having repeated exposures to dogs without any further trauma; gradually the fear response to dogs will diminish and no longer be problematic. Nevertheless, if the boy then sees a dog after being away from any dogs for some time, the boy will predictably feel afraid of dogs again as a result of spontaneous recovery [3].

A similar spontaneous recovery occurs with an operant response that has undergone extinction. Many children have the behavior of throwing bedtime tantrums when parents implement sleeping alone in the child's own room; tantruming and crying can result in parental attention, the parents staying in the room, the bedroom lights being left on, etc. Parents who let the child tantrum and do not re-enter the child's room after saying goodnight will eventually see the tantruming behavior subside as they withhold their attention to put the behavior on extinction. Predictably, if the child sleeps at the grandparent's house for a long weekend and subsequently returns to sleeping in their usual bedroom, the tantruming will show spontaneous recovery the first night the child is put to bed at home. If the parents do not reinforce the behavior, the spontaneous recovery of tantruming will be short lived [4].

This example of an operant response undergoing extinction raises the important point of one important distinction between the two processes of extinction. While the response undergoing extinction does weaken in both classical and operant conditioning, before the operant response does weaken due to the discontinued consequence, the response being measured will reliably increase in its frequency, intensity, and variability before weakening. This effect is known as an extinction burst and only occurs during the extinction process of operant conditioning. In the example just provided, the child's tantrums would reliably become louder, last longer, display different forms of throwing a tantrum as the behavior was put on extinction; all of these increases in the behavior of tantruming would be observed before the behavior would decrease. The parents need to withhold any attention for the tantrums to see the desired decrease in the unwanted behavior [3, 4].

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Extinction Burst

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Synonyms

Extinction

Definition

Extinction burst refers to the phenomenon of a previously reinforced or learned behavior temporarily increasing

when the reinforcement for the behavior is removed. Learning theory suggests the organism is increasing the frequency of the behavior in an attempt to regain the original reinforcement for the behavior. In the absence of additional reinforcement, the behavior will diminish to lower (pre-extinction burst) levels and eventual cessation.

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Extrafamilial Home

►Group Homes

Extrinsic

An extrinsic property depends on the relationship of one thing with other things. The term denotes a property of some thing or action which is essential and specific to that thing or action and which is completely independent of any other object, action or consequence.

Extrinsic Motivation

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Synonyms

External motivation

Definition

Engaging in an activity with expectations to receive a reward separate from the activity it self, or to accomplish something to make an impression on others by showing one's competency.

Description

When individuals engage in activities that are not personally enjoyable to them but grant them money, prestige, or beauty they are exerting extrinsic motivation. Extrinsic motivation is present when the incentives to engage in an activity are outside the individual and the reinforcement is due to an outside source. For example, when a child is committed to an activity he takes no pleasure in but he receives a reward for his work, he is being motivated to do this task because of an outside source, the reward (either a sticker, a pencil or extra time on the computer). Researchers suggest that extrinsically motivated learners may process information at a superficial level, often performing to meet minimal classroom requirements.

Relevance to Childhood Development

One's development of motivation can be influenced by outside sources. When one is influenced solely from outside sources they are being motivated extrinsically. Extrinsic factors develop when a child focuses on a goal because it might make him popular or he feels pressure from his parents to do well.

Extrinsic rewards may be detrimental to children if they are promised a reward every time they accomplish a task. Once the reward is stopped, the child may lose ambition to engage in that task again; he has no reason to initiate the activity on his own. Tangible rewards can be harmful for young children because they may become dependent on the rewards. Similar to Skinner's theory on operant conditioning, when a behavior is reinforced with a reward it is more likely the behavior will continue. However, once the reward is taken away the behavior decreases or ceases to exist.

Researchers also found that when children were rewarded for activities, their intrinsic motivation was undermined. They suggested that children notice patterns or develop schemas when other people, such as parents, use extrinsic incentives over and over. For example, when a parent offers a reward for a task, the child has the presumption that the task is probably something boring. Such as when a parent tells a child she can go outside and play, but only after she cleans her room. The extrinsic incentives are not always useful for younger children.

In the context of a classroom, students may exert little effort on their work to complete a task if they are extrinsically motivated. If their motivation to do the work does not lie within themselves, meaning they have no interest in the topic, they will provide the minimum amount of effort until the task is complete.

Other researchers found that verbal extrinsic motivators are not as detrimental to the college students as they are to younger children. When students enter college they are often motivated by verbal feedback such as "good work," or "you are an excellent student," which is a form of extrinsic motivation that has found to be helpful to college students. A student will sometimes work harder if he knows he will be recognized for his work.

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Extrinsically Motivated Behavior

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Synonyms

Contingency-maintained behavior; Reinforcement-maintained behavior

Definition

Extrinsically motivated behavior refers to behavior that is performed because of rewards that are external to a person.

Description

Motivation speaks to the issue of why a behavior occurs, or the reasons why certain behaviors are performed in lieu of others. Extrinsic motivation ascribes these reasons to external forces or rewards. Thus, behavior that occurs because of the external rewards that are involved are said to be extrinsically motivated. Completing a task for money, recognition/praise, or to avoid punishment are common examples of extrinsically motivated behavior. In these cases, the behavior occurs because of the external rewards, not because of some unseen, unverifiable intrinsic value of the task [1]. Virtually everything that humans do is, in some way, related to the outcomes of their behavior. Even behaviors that seemingly have no immediate external consequence or reward may continue for long periods of time because they have been rewarded in the past. In such a case, an observer may mistakenly believe that the person is engaging in the behavior because they "like" doing it versus the behavior being an infrequently reinforced behavior. Unfortunately, extrinsic motivation is often viewed with less esteem than intrinsic motivation. A person who is intrinsically motivated is often described in more positive terms than a person who is extrinsically motivated.

There is great debate about the effects of external rewards (extrinsic motivation) on internal motivation. This position is attributable to Edward Deci who, in the early 1970s, said that external rewards should not be used because they interfere with a person's natural interest and enjoyment of a task [3]. Three decades and over 100 studies later, the research strongly suggests that external rewards do not harm internal motivation nor do they lead to decreases in performance, enjoyment of a task, or creativity [2].

Relevance to Childhood Development

There is no evidence that providing external rewards for behavior is harmful to children, their development, or their performance in school or in athletics. In fact, genuine praise for performance, effort, or goal attainment enhances a child's sense of competence and esteem, improves their level of satisfaction, and generally leads to other positive outcomes. Tangible rewards do not create a "dependency" on the tangible for the behavior to occur and result in the same positive effects as praise [4].

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Eye Fixations

►Eye Movements

Eye Movements

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Synonyms

Eye fixations; Saccades

Definition

The voluntary or involuntary movement of the eyes that can be controlled by the individual or the external environment.

Description

There are four basic types of eye movements: pursuit, vergence, vestibular, and saccadic [3]. Pursuit eye movements occur when an individual attempts to track a moving object. Vergence eye movements occur when an individual moves their eyes from a distant object to a near object (or vice versa). Vestibular eye movements occur when an individual's eyes move to compensate for head and body movements. Saccadic eye movements are rapid, ballistic movements that serve to position the eye for visual processing. Visual processing occurs when the eyes are not moving (i.e., fixating). Visual processing is suppressed when the eye is in motion [4].

Relevance to Childhood Development

Researchers analyze eye movements in studies to investigate cognitive processing in adults as well as children and infants. Research with infants has shown that infants become bored with objects with which they are familiar, and they respond to them less and less over time. They spend less time looking at the object and make fewer eye movements to the object. The phenomenon is called habitation. By analyzing infants' eye movements during the viewing of objects, researchers can infer whether the infant recognizes the stimulus. Habituation has been used to investigate visual perception of faces and objects, visual acuity, and contrast sensitivity [2].

A second technique in which infants' eye movements are analyzed is the preferential looking paradigm. An infant is habituated to a stimulus over a number of trials. The infant is then shown a second stimulus that differs from the first stimulus and the looking time is compared for the two stimuli. If the infant looks longer at the second stimulus this suggests that the infant can discriminate between the stimuli. Preferential looking has been used to investigate memory, visual attention, and numbering in infants [1].

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Eye–Hand Coordination

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Definition

Coordinating the eyes and hands together to accomplish a task.

Description

Eye-hand coordination is important in many aspects of life. When children are babies coordinating their vision with hand movements ensures that they are able to pick up items. As children grow older their visual acuity directs their hands to draw, paint, catch a ball or put a puzzle together.

References

HEALTH BOOK…

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Fabry Syndrome

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Synonyms

Alpha-galactosidase A deficiency; Anderson-Fabry syndrome; Angiokeratoma corporis diffusum; Ceramide trihexosidase deficiency; GLA deficiency; Hereditary dystopic lipidosis; OMIM 301500

Definition

An X-linked disorder affecting multiple organ systems characterized by an enzymatic defect due to a reduction in the catabolism of compounds comprising galactosyl, resulting in a deficiency of the lysosomal enzyme α-galactosidase A. This deficiency leads to pathology in multiple organs.

Description

This deficiency results in the altered metabolism and an accumulation of globotriaosylceramide and other neutral glycolipids in various tissues throughout the body such as the heart, peripheral, and central nervous systems leading to pathology in multiple organs. Fabry syndrome (FS) is an X-linked disorder that manifests in males as well as females. Although symptom presentation in females is variable, some females experience symptoms characteristic of their male carriers. Fabry syndrome was once thought to be asymptomatic in all females due to an unaffected X-chromosome; however, more recent research suggests that symptom presentation may be similar to males [14, 18, 20]). The prevalence of FS may range from 1 in 40,000 to 1 in every 117,000 births and is more prevalent in males [4, 21]. Diagnosis may be aided by measuring the presence of α-galactosidase A activity in plasma or peripheral leukocytes [2]. The accumulation and altered metabolism of globotriaosylceramide may be associated with neuropathic pain, dermatological symptoms, renal and cardiac signs and symptoms, hearing loss and tinnitus, gastrointestinal problems, ophthalmic manifestations, and fatigue. Specific signs and symptoms may include, but are not limited to, severe left ventricular hypertrophy, acute pain attacks, acroparesthesia, diarrhea, heart palpitations and pain, various ocular disorders or difficulties such as clouding of the cornea, corneal dystrophy, cornea verticillata, cardiomyopathies, angiokeratoma, cerebrovascular accidents, lymphoedema, kidney disorders, hypohydrosis, proteinuria, respiratory problems, and other symptoms associated with central nervous system pathology [17, 18, 20, 28]. Neurologic complications may be evident in the central and peripheral nervous systems, manifested in areas such as cognitive impairment, autonomic dysfunction, and ischemic or hemorrhagic stroke. As many as 68% of individuals with FS may have white and gray matter lesions, with increased involvement approaching older age. Magnetic resonance imaging has identified the presence of cerebrovascular involvement in patients by 26 years of age. Cerebrovascular involvement is likely to increase and to encompass almost all patients by 54 years of age, suggesting increased susceptibility to cerebrovascular accidents with increasing age [1]. Damage to dorsal root ganglia neurons and axonal degeneration of small fibers may be responsible for the pain attacks that are often experienced with FS [5, 11]. Without treatment the presence of FS is associated with an average decrease in life span by 15 and 20 years in females and males respectively [17, 18].

Overall health-related quality-of-life in individuals with FS is considerably lower than that of unaffected individuals [22]. Greater than 70% of patients experience pain in the hands and feet, as well as in other areas of the body. Symptomatic pain appears to be more prevalent in males than in females [9]. Pain, tingling, and numbness of the skin may be induced or exacerbated by external changes in temperature [8]. Sensitivity to changes in temperature may make exercise or physical activities laborious [16]. With increasing age there is likely to be more cerebral and renal involvement. Onset of cardiomyopathy in males is up to 10 years earlier than in females. However, most individuals will eventually develop left ventricular hypertrophy [12].

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Delayed symptom onset and nonspecific symptomatology contributes to misdiagnosis and under diagnosis of FS [20, 31]. Echocardiography may be useful in differential diagnosis between FS cardiomyopathy and hypertrophic cardiomyopathy by a distinctive appearance of left ventricular endocardial border [23]. Left ventricular hypertrophy may be differentiated by features such as acroparesthesia, hypertension, and hypohydrosis [10]. Onset in childhood of early adolescence is most common, but may extend as late as early adulthood, with symptom presentation varying both with age and gender [9]. However, misdiagnoses are common and an accurate diagnosis may not be established for a mean 13–16 or more years after the first symptom presentation [20]. Hearing loss may be insidious and can occur across all frequency ranges, with the sensory threshold increasing with age [28].

Until recently, treatment for FS has been mainly palliative in nature. Studies using enzyme replacement therapy (ERT) have demonstrated improved long-term well-being of individuals with FS. ERT reduces the accumulation of globotriaosylceramide, and attenuates pain associated with FS. ERT has been associated with improved pain-related quality of life [9, 29]. The use of ERT may improve cold and heat thresholds to pain, the frequency of diarrhea, and may alleviate hypohydrosis [7]. ERT may also improve cardiac and renal functioning by reducing globotriaosylceramide and other glycolipid deposit levels. Improved renal functioning may be sustainable with ERT due to reduced glycolipid deposits in renal vascular endothelial cells. ERT is proving to be efficacious for the treatment of FS; however, more research needs to investigate long-term treatment outcomes [29, 30].

Relevance to Childhood Development

Unlike adults with FS, children do not typically experience major organ dysfunction; however, children may experience extremely distressing symptoms related to the syndrome's insidious progression [27]. Symptom presentation in children may appear by 6 and 7 years of age in males and females respectively, but symptoms have been observed as early as the first 3 years of life [24, 25]. Children and adolescents commonly experience hypohydrosis, cornea verticillata, and acroparaesthesias secondary to FS. Acroparesthesia may be elicited by emotional stress, exercise, or fatigue and be present by as early as 3 years of age or younger. Pain often occurs in the soles of the feet and the palms of the hands, which radiates proximally. This pain can produce extreme discomfort and range in duration from days to weeks. Other features of acroparesthesia and painful crises may also be experienced in other areas of the body such as the abdomen. Discomfort is likely due to small nerve fiber neuropathy, which may be misinterpreted as malingering due to its subtle nature [3]. As many as 67% of children with FS may experience vertigo, fatigue, and tinnitus. Gastrointestinal problems are common, and cardiac and renal complications are less present than the aforementioned signs and symptoms. These problems may be present in an attenuated form and develop with increasing age. Presentation in females is similar to males, but may be less frequent [28]. Cerebrovascular complications, such as those associated with increased risk of stroke, have been noted in patients as young as 6 years of age. Cerebrovascular, renal, and cardiovascular signs and symptoms tend to progress with age and increase one's susceptibility to future complications and morbidity [15, 19, 24, 25]. Similarly, white matter lesions may be present in children with FS and are likely to increase in incidence with age [6]. Ophthalmological features may be present in as many as 60% of children with FS. In addition, children with FS may be prone to more behavioral problems, anxiety, and depression [24, 25]. Mild hearing problems may be present and are likely to exacerbate with increasing age [13].

Although specific dosages and long-term effects of ERT have not been entirely established some have suggested treatment as early as possible after the first symptoms present, barring other complications. Since pathology related to the metabolic dysfunction in FS commences at birth, it is efficacious to begin ERT as soon as possible. In young children ERT may prevent the development of future disease processes [2]. Specifically, agalsidase alfa may be well tolerated in both male and female children, and improve manifestations of FS such as pain, heart rate variability, and hypohydrosis. Agalsidase alfa may also reduce the need for antineuropathic analgesics [24–26].

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Face Blindness or Facial Agnosia

►Prosopagnosia

Face Perception

►Facial Recognition

Facial Identification

►Facial Recognition

Facial Recognition

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Synonyms

Face perception; Facial identification

Definition

Facial recognition is the human ability to recognize a certain face from other faces.

Description

Face recognition is especially interesting because human faces are remarkably similar and yet most typical individuals show considerable accuracy in identifying individual faces. The parts of the face, such as the eyes, nose, mouth, and ears, are very similar from one individual to another. Furthermore, the proportions and configuration of parts of the face are also very similar. Such minute differences in the physical appearance of faces and the fact that humans are able to make precise judgments about the identity of faces despite their similarities has spawned considerable investigation of facial recognition.

It has long been known that infants as young as 4 months of age demonstrate a preference for human faces over other stimuli that are not configured as faces [2]. It has also been demonstrated in brain imaging studies that the human face elicits different neural pathways in the brain than non-face stimuli [4]. This research identified a brain area in the extrastriate cortex which has come to be known as the fusiform face area. Another group of researchers also used brain imaging technology to show that this same area is used by persons who are experts in identifying certain objects [3]. These studies have suggested that face recognition is a highly specialized human skill.

Vicki Bruce and Andy Young have contributed significantly to our understanding of facial recognition. They assert that our ability to identify one face from the other is dependent on the configural and holistic perception of the face. This is supported by studies that show a 95% accuracy rating for identifying familiar faces when viewed upright, but only 50–60% accuracy when viewed upside-down [1]. They also describe the Thatcher Effect to support the idea that configuration of facial features are paramount when recognizing faces.

Another important aspect of facial recognition seems to be distinctive characteristics. There are subtle differences in faces from the basic template of their configuration. Research has shown that faces which deviate from that common configuration are more easily and accurately distinguished [1]. It has also been shown using computer programs which can detect certain deviations from the normal face and enhance those differences to create a caricature, that those images of enhanced differences are actually more accurately recognized than the true picture of the person's face [1].

Relevance to Childhood Development

As children prefer to orient to facial stimuli, it is important to notice if the developing child does not show a preference for faces. This is a sign of abnormal development and could indicate an autism spectrum disorder. Persons with an autistic disorder show impaired abilities to recognize faces.

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Factor IX Deficiency

▶Hemophilia

Factor VIII Deficiency

▶Hemophilia

Failing a Grade

▶Grade Retention

Failure to Thrive

▶Feeding Disorder

Failure to Thrive Syndrome

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Synonyms

Growth faltering; Inadequate growth; Malnutrition; Protein-energy malnutrition; Undernutrition; Weight faltering

Definition

Failure to thrive syndrome (FTT) is a condition in infants and young children in which they do not grow at expected rates. It can be a sign of a general medical condition or can have other biopsychosocial causes.

Description

Failure to thrive is the term generally used to describe a syndrome in which an infant or child does not grow at a rate considered to be healthy. It is generally diagnosed based on size ratio, whether it is weight-for-height, weight-for-age, or height-for-age [7]. Weight-for-age is the most common ratio used to assess FTT. Weights are plotted according to age along a normal distribution curve, and neonates who fall below a certain cutoff score are considered to be failing to thrive. Professionals are not entirely unanimous in what this cutoff score should be, but most of the literature describes cutoff scores as below the third or fifth percentile [1, 7]. It is also important to distinguish between pre and postnatal failure to gain weight because they may have different etiologies and sequelae.

Given the diagnostic definition of falling below cutoff scores on the normal distribution curve of a growth ratio, it is not surprising that overall lifetime prevalence rates are approximately 5% [8]. Neonates younger than two months have higher prevalence rates, approximately 12% for having a low height-for-age ratio and 4.1% for having a low weight-for-height ratio [8].

FTT is categorized based on the etiology of the insufficient caloric intake: organic (OFTT), nonorganic (NFTT), or of mixed etiology (MFTT; 1). Specific associated risks of undernutrition depend on the type of FTT. Children with OFTT or MFTT, for example, may be more likely to have a lower birth weight, and children with NFTT may be more likely to live in poverty and less likely to live with both parents [8]. If the etiology is organic, there could be any of a number of different causes, such as prenatal (e.g., toxin exposure, premature birth, congenital anomalies) or an ongoing general medical condition such as a gastrointestinal or central nervous system disturbance [7].

If there is no medical or physical reason for the growth delay, then the FTT is likely due to low food intake [1]. This is frequently the case, since research has shown a low rate of being able to identify a specific medical illness as the sole cause; in the majority of cases, the FTT had mixed etiologies. Some researchers have found that children with FTT tend to show less of an interest in food, to be somewhat pickier eaters, and to have been weaned later than controls [1, 9]. Inadequate intake may also be caused by feeding problems such as dysphagia, a condition in which children have difficulty with swallowing mechanisms and behaviors [4, 5]. Complications with breast feeding can lead to inadequate growth in infants as well [8].

Other factors that have been associated with FTT include attachment style, presence of abuse or neglect, poverty, and psychopathology and age of the mother [1, 9]. These are controversial, however, and are being debated in the scientific literature.

OFTT or inadequate growth can be caused by any of a variety of factors. The condition may be due to the direct effects of a general medical condition such as heart disease, cystic fibrosis, a persistent infectious disease (e.g., AIDS), or endocrine abnormalities. It could also be due to prenatal exposure to drugs or toxins, or to inadequate food intake secondary to a general medical condition [1, 2, 8].

Gastrointestinal problems that lead specifically to FTT can be divided into two categories: inadequate intake (not eating enough) and excessive losses of nutrients (not absorbing or retaining; 5). Inadequate intake may be caused by pain or discomfort in the esophagus or stomach. Gastrointestinal reflux, or spitting up, is different from vomiting. It is common in healthy children and not usually a problem; if it happens too frequently, however, it can possibly cause malnutrition [4]. For excessive losses, the causes are generally vomiting, diarrhea, or malabsorption. Actual vomiting may be more serious than reflux since it is more likely to be associated with an illness that could lead to poor weight gain. Diarrhea can be a sign that nutrients are not being absorbed properly by the digestive tract, and if severe, can lead to poor weight gain in infants. An example of a disease that has these signs, including poor growth and weight gain, is celiac disease [4].

Some neurological disorders that can cause FTT and poor growth are ►cerebral palsy (CP), tumors of the central nervous system, and myopathy [3]. These can cause a low birth weight and/or motor problems with

feeding behaviors that lead to lower food intake [1, 3]. CP, for example, can cause problems swallowing.

Prenatal exposure to teratogens such as alcohol and other drugs can lead to OFTT. Fetal alcohol syndrome (FAS) can lead to a low birth weight, height, and head circumference [2]. When FAS is not present, the scientific literature on the effects of alcohol exposure on size, growth, and weight is inconsistent. Prenatal exposure to tobacco can cause lower size, weight, and growth rates in infants. Exposure of infants to second hand smoke can lead to growth faltering secondary to respiratory infections [2]. Prenatal exposure to cocaine often causes low birth weight. The literature concerning how well these infants can catch up to normal weights is inconsistent, however. Prenatal exposure to opiates (e.g., heroin) can lead to smaller sizes of infants [2]. Furthermore, when infants are born dependent on opiates, they can have withdrawal symptoms which include vomiting, diarrhea, and disturbances in feeding behaviors.

Since FTT is a heterogeneous condition, it is essential to determine the cause when considering treatment options. Prognosis of OFTT depends on the response to treatment of the underlying condition, as well as the severity of the malnutrition and the number and severity of its causes [7]. Unless there is a specific and identifiable medical condition identified as the cause, interventions tend to focus on parent training for feeding behaviors. In addition to establishing a theory of etiology, it is important to take into account the age and cognitive development of the children when assessing and formulating a treatment plan. With hospitalization and multi-disciplinary interventions, including nutritional rehabilitation, there can be a good chance for rapid growth catch-up.

Relevance to Childhood Development

FTT can be associated with serious outcomes and developmental sequelae if it is not treated. These include medical conditions, delays in psychomotor development, and cognitive deficits. It also may be associated with cardiovascular disease and other heart problems later in life [1, 8].

Nutritionally at-risk infants tend to have lower scores on a psychomotor development index [6]. There is also some evidence to suggest that malnourished children have a lower activity level and are less active, possibly to conserve energy. Not all studies have come to this conclusion, however.

Low birth weight has been associated with poorer intellectual development and cognitive functioning, although studies differ with regard to the extent of this effect [1, 6]. FTT has been moderately associated with lower IQ, even after controlling for birth weight and time of gestation. FTT has also been associated with more cognitive decline in old age. The strength of these associations has not been consistent, however. Malnutrition can also lead to a condition called microcephaly, in which the infant has a small head circumference, as well as cognitive impairments [3]. With regard to social emotional functioning, individuals who had FTT as infants did not demonstrate emotional problems in adolescence, but did in adulthood [1]. These effects were possibly mediated through IQ and their associated physical health conditions.

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Fairbairn's Psychoanalytic Theory

▶Object Relations Theory

False Belief Task

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Synonyms

Appearance-reality task; Emotion false belief; Maxi task; Sally-Ann task; Theory of mind task; Unintended transfer task

Definition

A false belief task is commonly used in child development research to assess social understanding or theory of mind. A wide variety of these have been developed using common play materials and story themes that children feel comfortable with. Their common goal is to determine whether children can distinguish between the thoughts and feelings they themselves currently have with those that can be possibly held by others.

Description

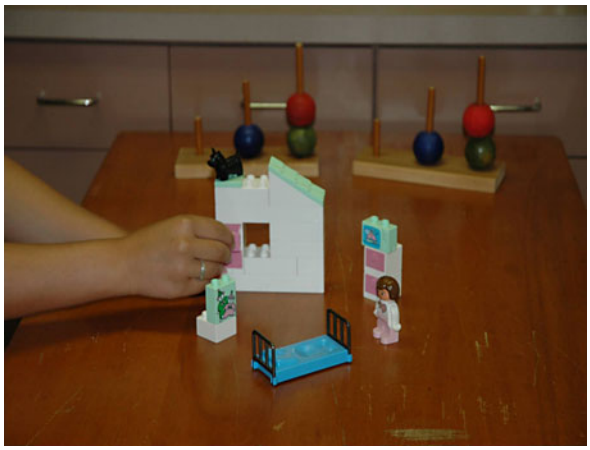
False belief tasks have become widely known and used in child development research [2, 4], although there are many different versions of these tasks. They all have the common feature of creating a situation in which a child is led to believe something about a current set of circumstances, but this belief is different from a belief that should/could be held by others. There are various techniques used to deliver false belief tasks and many have formal scripts associated with them. Many involve the use of household items and toys as props for the task, and most recently, some of these tasks have been converted to a series of pictures so they can be delivered on a computer or without oral scripts or test questions. Typically there are a number of control questions that children are asked, in addition to the essential test question for false belief, and performance is judged on a pass/fail basis from the answers to these questions.

Two common and well-known false belief tasks will be described to show how they work. The first is the "Smarties task" [5], in which a child is shown a closed box of Smarties, the box is rattled to generate interest, and the child is asked what they think is in the box. Children typically answer with the obvious, Smarties. But then the box is emptied out into the experimenter's hand and it turns out to be rocks in the box. This is surprising to the child as the actual contents of the Smartie box are unexpected. The rocks are then returned to the box, and the child is then asked a number of test questions. These include what they think another child new to the scene would think is in the box when the other child first sees the box. In order to answer the question correctly (i.e., that the other child should think it is Smarties), the child participant needs to separate what they know is really in the box (rocks) from the false belief the new child should have (that the box contains Smarties).

A whole series of these kinds of tasks have been developed in which a brick turns out to be a sponge that looks like a rock, an apple turns out to be a candle, an egg-carton contains forks and not eggs, and a pen turns out to be a flashlight. The common feature of these kinds of tasks is that an object is not what it appears to be or contain what it should contain, the deception is revealed, and the child is asked what another child would initially think.

A second kind of task is called the Maxi-task, aka unintended transfer task. This kind of false belief task involves a script often acted out with props in which Maxi is playing with an object of some kind, puts it in a hidden place, and then has some reason to leave the situation. While Maxi is gone, a foil enters the room and moves the object from one location to another hidden location, all in the full view of the participant child but not Maxi. The foil leaves, Maxi returns, and the test questions revolve around where Maxi should look for his toy. The participant passes the task by answering that Maxi should look in the original location and not the new one, but to do so, children must separate what they know to be true (i.e., the object is in location 2) to what Maxi should know (the object should be in location 1 because that is where he left it and he was gone when the foil moved the object). If they make this distinction, then participants are said to have an understanding of the "self" as a mental agent whose thoughts and feelings can either change over time or can be different from those of an "other."

Various versions of false belief tasks exist in which all kinds of objects and toys are relocated, the identity of the foil changes (e.g., monkey, clown), and Maxi is given a name more appropriate to the country where the research is conducted (e.g., Sally-Ann). Figure 1 shows the kinds of materials that could be used in conjunction with this kind of script [13]. Typically a whole series of false belief tasks are administered in what is often called a theory of mind battery, but this varies considerably from as few as one or two, to as many as a dozen or more. Tasks must differ from one another within a battery as many require the participant to be deceived. Each is scored on a pass/fail basis where chance performance is 0.50 (i.e., random response). Typically a false belief score is the average level of performance across these tasks [6].



False Belief Task. Fig. 1

Relevance to Childhood Development

Initial use of false belief tasks took place in theory of mind research on children's cognitive development. This research sought to determine when tasks were passed in an above-chance way, and this was seen as a developmental milestone that indicated a child had transitioned to a higher level of social understanding and "had" a theory of mind that allowed them to distinguish between thoughts of self and those of another. There is variability in when this occurs across studies and cultures, but typically this is around 5 years of age [15]. However, there is considerable variability in when children pass false belief tasks, and research has evolved from examining when children typically pass tasks to treating their performance as an individual difference variable. In other words, different children begin to pass tasks at different ages, and performance can be calculated and then related to other aspects of child development in longitudinal or correlational research. For example, there are a number of other cognitive factors that develop significantly around age five associated with passing false belief tasks, including the executive functions of attention, memory, and inhibitory control [10]. Some of this research has attempted to vary aspects of the false belief task to isolate specific cognitive factors that could affect performance.

In addition, research has focused on experiential factors that are related to passing false belief tasks [8, 9]. Cognitive development in childhood occurs within family, peer, and school social environments, and it is important to consider social factors that relate to passing false belief tasks. Much of this research has focused on talking about thoughts and feelings, which has also been referred to as discourse about mental states, inner state talk, and belief-desire talk [12]. Some of this research has shown that mental state discourse predicts false belief task performance, and thus may contribute to the development of social understanding. Other research has focused on family factors including whether children have older siblings, what kind of disciplinary strategies are used in the home, what kind of language is used when interacting with children in common tasks like play and joint-reading, and cultural factors [14]. Parental factors have also been considered, such as whether a parent tend to describe their child in terms of mental states, that is, in a mind-minded fashion. There have also been a number of training studies in which children who have failed false belief tasks have been exposed to social discourse about competing beliefs and desires, and these children do better on false belief tasks compared to children who receive other kinds of training [7, 11]. There is thus considerable evidence that social talk about thoughts and feelings is related both longitudinally, cross-sectionally, and experimentally to children passing false belief tasks.

Language development more generally has been examined as a factor in false belief task performance. Because language development can be used as an estimate of general developmental level, many studies use a measure of receptive language as a control variable in their analyses. Other research has focused on the grammatical structure of language [2], and how children's development in this area is related to performance and comprehension of false belief tasks. Parental language which is sensitive to and elaborative of children's own language is related to children's social understanding.

A final area of use of false belief tasks is in studies of children with atypical development. This is most well-known in the area of autism [1] due to the serious social deficits and poor false belief performance of children in this clinical group. However, there have been many studies of children with other clinical problems of attention, behavior, and conduct, and false belief performance is also poorer in these children than typically developing children. Because false belief tasks are designed to test social understanding in young children, they are useful for either clinical problems that arise at this age or with older children whose developmental level is at this age.

The false belief task is a tool that has become synonymous with what it is designed to study, that is, theory of mind and social understanding. Because research has spanned all areas of child development and been used with clinical samples, it has been used widely over the past 25 years in both basic and applied research.

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Falter

►Stuttering

Family Constellation

►Birth Order

Family Dissolution

►Divorce-Stress-Adjustment Perspective

Family Drawing

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Synonyms

Family drawing global rating scales; Kinetic family drawing

Definition

Family Drawing is a widely used test in psychodiagnostic assessment that allows the clinician gain some understanding and awareness into the child's perception of itself; the child's perception of its parents; and "some indicators of the development of its mental organization" [1]. The family drawing is considered an optional tool for the investigation of the child's mental representation of attachment to the parents synchronized with the developmental psychology concepts [1].

Description

The family drawing "projects the image of the family as perceived by the child in its growth" [1]. The family drawing also provides insight into the child's "fantasies that combine the child's subjective life experiences and their meetings with the objective outside world [1]." There are several ways to analyze children's family drawings. One of the most widely used projective drawing techniques is the Kinetic Family Drawing (KFD) devised by Burns and Kaufman in 1970 [2]. The Kinetic Family Drawing involves the therapist asking the test taker, usually a child, to draw a picture of his or her entire family [3]. With the Kinetic Family Drawing, children are asked to draw a picture of their family, including themselves, engaged in some activity [3]. The purpose of "this picture is meant to elicit the child's attitudes toward his or her family and the overall family dynamics" [3]. "The examiner may then ask the child questions about the drawing, such as what is happening and who is in the picture. Certain characteristics of the drawing are noted upon analysis, such as the placement of family members; the absence of any members; whether the figures are relatively consistent with reality or altered by the child; the absence

of particular body parts; erasures; elevated figures; and so on." Another popular method less concerned with the placement or absence of figures is the Family Drawing Global Rating Scales [4]. The FDGRS is a set of eight scales with an assigned numerical rating for the overall pattern of drawing features [4]. These scales rate "the emotional tone and quality of the mother–child relationship portrayed in family drawings" [4]. The dimensions of the FDGRS are "two positive dimensions, vitality/creativity, family pride/happiness, and six negative dimensions, vulnerability, emotional distance/isolation, tension/anger, role-reversal, bizarreness/dissociation, and global pathology" [4].

Relevance to Childhood Development

The non-verbal nature of the family drawing allows the child a safe outlet to express those feelings he/she may not otherwise be able to express verbally, including those aspects of mental representations the child is not aware of on a conscious level [4].

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Family Drawing Global Rating Scales

►Family Drawing

Family Relationships

►Relationships

Family Structure

►Baumrind's Parenting Styles
►Parenting Styles

Family Systems Theory

►Systems Theory

Family Therapist

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Synonyms

Bowenians; Collaborative; Dyadic therapist; Milan therapist; Social constructionist; Social system; Strategist; Structuralist; Systems therapist; Triadic; Triangular

Definition

A family therapist is a clinician who has received extensive training in working systemically with a group of individuals who live in an interdependent relationship with one another. The definition of family is open to many different interpretations in today's world.

Description

The family therapist assists families with improving communications, parent and child interactions and resolve challenges families confront including traumas, illnesses and normal developmental changes. Family membership normally remains intact even beyond the time the family lives together as a unit. Family therapist is a protected title and can only be used by those individuals who are certified by a marriage and family licensing board. Family therapists usually conduct evaluations and interviews with the entire family and any extended members who wish to work on the family's identified problem. Family therapists are trained to work systemically and incorporate all aspects – developmental, cultural, socioeconomic, health, community, gender – which impact the family. Family therapists must also be clear about ethical challenges when working with more than one individual at a time. There are many different approaches utilized by family therapists. Among the most well known are the object relations therapists, experiential family therapists, Bowenians, structuralists, strategists, Milan therapists, solution focused therapists, narrative therapists and feminist family therapists. Different theories of change focus on different aspects. All family therapists focus on the interactional component of the system. Some models

focus on the insight-action dichotomy while others say change comes when the cognitions change, while others collaborate with the system to find new solutions. Family therapists may work alone or with a team of therapists who will provide reflections to the family in helping them to introduce new perspectives which may lead to change. Many family therapists also believe that small change leads to big change and thus brief therapy approaches are successful in helping families reach their goals. All family therapists concentrate on helping the clients to see they have choices to handle their situations differently and reintroduce hope to the family. Family therapists may work as a part of crisis intervention, brief or long term. There is also outcome evidence being collected to show the utilization of single session, walk in therapy is a powerful way for family therapist to assist families.

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Family Therapy

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Synonyms

Conjoint therapy

Definition

Family therapy is the application of therapeutic techniques and theories to the family as client or patient. Family in this instance can be defined as any number of biologically or otherwise related (e.g., by marriage) individuals, including multi-generational relationships, who may or may not reside together.

Description

Early work in family therapy in the 1950s centered on the work of Bateson and his colleagues at the Mental Research Institute [1] studying communication patterns among schizophrenic and their families and with Bowen [2], in a more clinically oriented setting treating schizophrenic patients within the family group. Distinct schools of family therapy have evolved over time (see below), but most share the common aspects of therapists taking an active and sometime directive approach, maintaining a focus on the present, and the premise that all family members somehow play a role in the family dysfunction. The most influential models of family therapy are described below:

Family Systems Therapy

Bowen's [2] theory focuses on the degree of "differentiation" an individual is able to achieve from the family if origin and how t related to emotional and intellectual systems, which may become "used" if the person has difficulty differentiating themselves. Bowen used the term "triangles" to describe how individuals within a family system may deal with anxiety by members "fusing" together to exclude another. Birth order and transgenerational issues are considered important to understand the individual's relationship tendencies. Therapy focuses on gaining insight through interacting in different ways with family of origin members to improve differentiation and "detriangulate."

Strategic Family Therapy

Proposed primarily by Haley [3], strategic approaches to family therapy center around the family's protective and dysfunctional interaction patterns that serve to hold the family together. Therapists provide directive and sometime provocative tasks to challenge the existing patterns and effect change. A family's insight into their difficulties is not considered important and is not a goal of therapy.

Structural Family Therapy

Developed by Minuchin [5], the Structural approach focuses on bringing family interactional patterns into the session to allow the therapist opportunities to influence boundaries difficulties between family subsystems and thereby improve problem solving among family members. He uses terms such as "enmeshment" and "disengagement" to describe aspects of family structure that relate to boundaries and the connection or lack of connection among family members. Minuchin stressed the need for the therapist to "join" the family to help unbalance the dysfunctional system.

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Fantasy Play

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Synonyms

Dramatic play; Make-believe play; Pretend play

Definition

Fantasy play is a type of non-realistic play in which children take on different roles and enact various situations.

Description

Fantasy play is nonliteral, meaning it is not realistic. It involves pretense and symbolism and greatly evokes a child's imaginative capacity [3]. In this type of play, children take on different roles and are able to examine and understand various types of interpersonal interactions and social situations. Children may perform activities without the materials and the social context necessary for such activities in reality. Children may also create their own outcomes to the activity they are pretending to perform and may use inanimate objects as animate beings.

Relevance to Childhood Development

Engaging in fantasy play has many benefits for the developing child. This type of play improves the child's understanding of the world, contributes to the development of social understanding, improves emotional development, and exercises imaginative capacity. While engaging in fantasy play, children develop their own narratives and listen to other children's narratives [1]. Through these narratives, they can make sense of the world and learn to guide their behaviors within different social roles. Children take on characters and explore different perspectives for themselves. Through their generated stories, children also learn to negotiate and see themselves in relation to others. Together, children practice planning and negotiating how objects, people, and actions function in their make-believe world. This type of play also allows children to engage in affective role taking, which is necessary for their emotional development [2].

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FAS

►Fetal Alcohol Syndrome

Fascia

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Definition

A sheet or band of connective tissue which binds or covers soft structures of the body such as muscles or organs.

Description

Fascia is a sheet of tissue often white and fibrous which acts as a connector, binder or cover for various internal organs and muscles. It is composed of a superficial and a deep layer and is responsible for structural integrity connecting the skin to the structures and organs underneath, serving as a suspension mechanism for internal organs capable of contraction and relaxation. Aponeurosis is generally a type which connects muscle to bone and resemble.

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Fatal Illness

►Terminal Illness

Father Only Families

►Single Parent Families

Fathers

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Literature concerning children's emotional attachment and emotional development has dealt primarily with the mother–infant interactions. Indeed, prior to the 1970s research centering about the contributions of fathers to the psychosocial growth and development of infants has been rather limited. According to Gill [3], studies have reported that both father's presence and absence can have serious affects on the personality development of a child. In our culture infants form more intense attachments to primary caregivers (usually mothers) and slightly less intense attachments to secondary caregivers (often fathers). Such differential reactions displayed by infants is understandable given that soon after birth the infant's basic needs for feeding, physical comfort, touching, changing diapers, and other related activities are performed primarily by mothers. It may also be argued that infants are attached more to their mothers because of the role and expectation that society has assigned to them. What then are the roles of fathers? What does the phrase "to father a child" mean? Does it refer only to the act of insemination but not to the responsibility for raising a child? Is the father's role limited to the sole biological contribution of the moment of conception? Do these questions suggest that what fathers contribute to their offspring after conception is largely a matter of cultural devising and definition? At this point, it may be helpful to make a distinction between two related concepts; namely *father* and *fatherhood*. The term *father* tends to emphasize the biological connection between the progenitor and his offspring, while the concept of *fatherhood* stresses the socio-cultural and psychological obligation that men have to their biological offsprings. At times, we observe a harmonious synergism between these two concepts, and when that happens, positive outcome invariably occurs. When a disjunction or a gap between *father* and *fatherhood* takes place, the risk of deleterious effect increases considerably. Psychoanalytic Object Relations theories are inclined to state that when a father dies, his fatherhood lives on, as a mental representation, in the child's psyche. However, when the father deserts the family his fatherhood leaves with him and the child will be unfathered. Indeed, when a father dies, children grieve and mourn the loss, but when the father abandons the children, they feel anger, anxiety, resentment, guilt, and self-blame.

Richard Gill's book *Posterity Lost* (1997), a well-document scholarly written document underscores the idea that the current structure of the American family life is deteriorating. The rapid rate of divorce, increasing domestic violence and child abuse, early teenage pregnancies, juvenile crimes, drugs, antisocial behavior, suicide, and poor attendance and increasing failures in schools are highly symptomatic of the breakdown observed in our current family life. At the core of this crisis in family life seems to be the roles and functions of fathers. The presence of fathers at home seems to serve as an important stabilizing factor. Gill [3], adds that the explosion of crime and violence among children and teenagers in recent years, is most attributed to the absence of a father in the household. He adds, "Fully 70% of all prison and reform school inmates come from fatherless homes. This is a dramatic finding that underlies the critical importance of a caring and competent father to serve both as a role model and disciplinarian during the often wild teenage years, particularly for young males" (p. 41). Hrdy [5], states, "No matter how Apollo-like the progenitor, how skilled a hunter, how good his genes, how viable his immune system, his absence puts his children at a disadvantage" (p. 235). She adds that in fatherless families one sees higher rates of delinquency for boys and early pregnancies for girls. Gill [3], in reflecting over current American families, suggests that fatherlessness is the most harmful demographic trend of this generation and that it is the engine driving our most urgent social problems. Despite the deleterious effects of fatherlessness in our society, it is a problem which is minimized, ignored, or denied. According to Blankenhorn [1], in 1990, 36.3% of American children were living apart from their biological fathers... Scholars estimate that before they reach age eighteen, more than half of all children in the nation will live apart from their fathers for at least a significant portion of their childhood (p. 18–19).

Relevance to Childhood Development

Regardless of the changing economic and social condition and guided by the desire to stamp out the erosion of fatherlessness, it is incumbent on all of us to take all necessary measures to put an end to such a serious social problem. Efforts should be made to help growing children realize that both parents have equal responsibility in raising them to be trustworthy, honest, and responsible children. Parents should realize that children try to emulate their parents' behavior and that when parents act in a mature, responsible, and a respectful manner children will try to model their behaviors after them. Grinker et al [4], in outlining a cluster of conditions he associates with mental health listed the followings: "satisfactory positive affectionate relationships with both parents, parental agreement and cooperation in child raising, definite and known limitations and boundaries placed on behavior, and strong identification with father and father figures" (p.146). Thus, rather than conveying the idea that fathers are breadwinners and disciplinarian, children should be help to view fathers and their presence in the family as crucial socializing agents who compliment the various maternal functions. Fathers, realizing that in the last few decades have gradually moved from the center to the periphery of family life, must by their actions and behaviors try to reclaim their original position, that of being central to family life. In his very moving statement, Blankenhorn [1], stated, "I pledge to live my life according to the principle that every child deserves a father; that marriage is the pathway to effective fatherhood; that part of being a good man means being a good father; and that America need more good men (p.226)."

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Fatness

►Obesity

FBA

►Functional Behavioral Assessment

Fear

►Anxiety

Fear of Strangers

►Stranger Anxiety

Fecal Soiling

►Encopresis

Feeding

►Breastfeeding

Feeding Disorder

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Synonyms

Failure to thrive; Food refusal/selectivity

Definition

A feeding disorder is a disorder in which food intake is insufficient to maintain health.

Description

A feeding disorder is diagnosed when the amount of food consumed or caloric intake is insufficient to maintain

appropriate weight or growth [1]. While the exact etiology, prevalence, and change due to maturation is relatively unknown, various social and biological factors appear to be involved. Feeding disorders tend to be categorized as structural abnormalities affecting ability to eat, neurological or developmental disorders affecting ability to eat, or as behavioral feeding disorders [2]. Feeding disorders are not specific to one population, however, are more prevalent in the developmentally disabled, and may pose a variety of health risks [7]. A variety or problematic behaviors may be associated with feeding disorders, such as vomiting, rumination, gagging, expulsion, negative affect, and tantrums. Often the first course of treatment is a medical approach, however, behavioral interventions have been shown to be effective [3, 5, 6].

Relevance to Childhood Development

Feeding disorders are reportedly one of the most common disorders of childhood, and affect an estimated 25–35% of typically developing children, and 33–80% of children with developmental delays [4]. Evaluation for a feeding disorder often occurs when a child is developmentally delayed, presents with neurological or physical problems or defects, or behavioral issues. Causes may be due to medical disorders such as gastroesophageal reflux, disorders causing malabsorption of food, lactose intolerance, celiac disease, disorders causing persistent vomiting or diarrhea, and cystic fibrosis. Abnormalities affecting ability to swallow or delayed or insufficient oral motor skills may also contribute to the development of a feeding disorder. Social and environmental factors have also been identified, such as conditions unfavorable for eating, inadequate consequences for inappropriate or appropriate eating, parental beliefs regarding nutrition, maternal depression, and social isolation.

Children diagnosed with a feeding disorder are at risk for a variety of health risks, such as malnutrition, lethargy, delayed growth, significant weight loss, failure to gain weight, developmental delays, and cognitive delays. Feeding disorders are often reported to cause parental stress, and are often associated with disrupted or difficult mealtimes. Further, feeding disorders may be linked to an increased risk of eating disorders later in life.

Treatment is oftentimes medical, and involves force feeding, intravenous feeding, and tube feedings such as gastrostomy, oral-gastric, or naso-gastric tubes. Such treatments often serve as stabilizing procedures when life-threatening risk of dehydration or malnutrition occurs. Behavioral treatment is also often effective, and may include components such as prompts to eat, punishment, extinction procedures, and differential reinforcement [5]. Procedures such as manipulating the texture or portion of meals have been demonstrated to be effective in treating feeding disorders. While some issues related to feeding disorders tend to persist, behavioral interventions have shown success in increasing food intake in children with feeding disorders.

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Feelings

►Affect

Feingold Diet

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Definition

Feingold diet a controversial diet for hyperactive children which excludes artificial colors, artificial flavors, preservatives, and salicylates.

http://medical-dictionary.thefreedictionary.com/Feingold+diet

Description

This diet requires the removal of any additives or chemicals thought to be the source of ADD or ADHD. Any type of artificial coloring is eliminated because it is derived from petroleum by-products and this is thought to cause hyperactivity. Thus, any food containing an artificial coloring is removed from the diet.

In addition, any food containing artificial flavoring is removed from the diet. The Feingold Association is concerned that these additives may not have had the thorough study of the effects on the behavior of children. Of particular concern is the flavoring vanilla. This flavor is frequently made from the by-products of paper production. Further, Aspartame, the artificial sweetener, is also eliminated from the diet.

No artificial preservatives are allowed in the diet when following the Feingold Diet. This includes BHA (Butylated Hydroxyanisole) and BHT (Butylated Hydroxtoluene). Both of them are derivatives of petroleum.

Initially numerous salicylates are removed from the diet but are reintroduced later. Some salicylates occur naturally such as apples, berries, grapes, oranges, peaches, plums, tangerines, and tomatoes.

The diet is divided into two stages. The first stage includes the removal of all foods thought to cause the disorders. Next, each food is added back into the diet, one food at a time to help determine if it causes the symptoms.

This diet can be very difficult to follow and very time consuming. Sleep disturbances and constipation may occur. Therefore, it is recommended that before a child is put on the Feingold Diet their physician or pediatrician is contacted.

In addition, The Feingold Association of the United States has an in-depth website concerning this diet. This association offers a free e-newsletter, materials as well as numerous resources pertaining to the diet.

http://wellness.diet.com/encyclopedia-of-diets/dr-feingold-diet

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Female

►Femininity

Female Gamete

►Ovum

Female Germ Cell

►Ovum

Femaleness

►Femininity

Feminine

►Femininity

Femininity

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Synonyms

Effeminate; Effete; Female; Femaleness; Feminine; Fertile; Girlhood; Girly; Maternal; Womanhood; Womanly

Definition

To possess a trait or characteristic that has been associated with the totality of being female or womanlike; most often influenced by socio-cultural norms and expectations.

Description

The term femininity encompasses what people perceive as how to look, act, think, and feel to be considered or labeled female. These labels or as some may say constraints dictate how one achieves these feminine ideals set forth by our society, media, culture, and familial factors. Nakash et al. [2] defined femininity as a "concern for others and on connectedness, with attributes such as gentleness,

submissiveness, dependency, and emotionality" being the primary focus of those identifying with the female gender (p. 4). The term takes on a more specific meaning then just the physicality of a female body, but defines personality traits and ways of relating to others for young girls and women to successfully subscribe to feminine ideologies.

Typically, we associate femininity with females of all ages as a group. The perceived primary indicator of whether or not one is feminine relates to one's sex. However, this way of acting female can go beyond the general scope of gender in that males can also adopt feminine traits and ways of being just as females adopt masculine traits. This belief stems from the biological roots in that males need the hormone estrogen and females need the hormone testosterone as survival mechanisms. Additionally, the media and social influences have even created a name for men who incorporate these feminine traits into their masculinity as "metrosexual." Societal pressures and cultural demands most commonly illustrated in different forms of media can dictate how young women should embody these set of expectations to fit the mold of what it means to be a feminine girl or woman.

From the moment that a child's sex has been announced as, "It's a girl!" the female roles and expectations begin to form from the abundance of pink-colored outfits to the sense of being more sensitive and fragile than their male counterparts. Young girls are even taught the correct expression of emotions or the socially accepted toys such as baby dolls and kitchen sets that they should be interested in as children to be considered female. Furthermore, when it comes to females selecting a chosen profession these roles and expectations surface in that it is more socially acceptable for women to enter professions in the helping field such as nurses, teachers, social workers, and secretaries to name a few; instead of becoming lawyers, physicians, engineers, or executives of companies. These ideals of what it means to be feminine and the ability to intertwine femininity into one's sense of self are born. This concept develops as a child progresses into the different stages of development into adulthood.

As a young girl progresses through puberty and becomes "a woman now" with the start of the menstrual cycle and the development of breasts new duties emerge upon entering adulthood such as being a caretaker, procreator, mother, and good wife [3]. In addition, this rite of passage fosters a new source of feminine identity "to create a sense of belonging within society," which is typically "engrained during childhood and inevitably forges a source of connection with one's body that is not necessarily positive or healthy" ([4], p. 41). For young girls, the ability to uphold these obligations upon entering adulthood and possess an identity outside of their physical bodily appearance may create struggles when it comes to embracing one's feminine identity. The female breasts are one of the most represented symbols of femininity even referred to as the "crown jewels of femininity" ([5], p. 3). Not all young girls accept these bodily changes as part of their new identity by wearing baggy clothing to camouflage or hide the appearance of breasts.

It has also been described as impacting one's body, hair, clothing choice, voice, skin, movement, emotion, and ambition [1]. When it comes to the physical female body, femininity has been defined as the distance "between the nipples of the breasts, from the lower edge of the breast to the navel, and the distance from the naval to the crotch" all being units of equal length according to the classical Greeks ([1], p. 23).These specific formulas have even filtrated into the field of cosmetic surgery where asthetic plastic surgeons use particular measurements when creating the newly constructed ideal body part(s) for female consumers based on these standards of beauty. Moreover, when it comes to looking the part of an ideal female or the ability to possess an air of femininity one needs particular clothing to induce "the body to strut about in small, restrained yet show-offy ways" ([1], p. 79). This look can be achieved by wearing fitted yet but not revealing clothing paired with high stiletto heels, and the addition of accessories such as: bracelets, earrings, and necklaces. To complete the look of femininity we must add the use of make-up to accentuate and highlight facial features, and a spray of sweet smelling perfume to create the embodiment of what it means to look and dress female.

Relevance to Childhood Development

Femininity is a term that is automatically associated with young girls and adolescents simply due to the fact of their sex. Young girls are taught at such a young age what it means to be feminine or a "girly girl." It starts with the color pink being the signature color to girls should openly express their emotions; except for those society has labeled as "negative emotions" such as anger, hostility, and jealousy because it is considered impolite to express those in public. This idea of femininity is also woven within the future goals and expectations set forth for girls in part of the social roles or professions to venture into. Femininity is a form of self expression that young girls and women should be able incorporate into the sum total of whom they are based on their personal perception of what it means to be female. Although social and cultural constraints may paint a vivid picture of how

one should look, act, think, and feel to be considered female it is the individuals choice to select which of those ideals they want to include in the personal worldview and identity.

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Fertile

►Femininity

Festinger, Leon

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Life Dates

(1919–1989)

Introduction

Dr. Leon Festinger earned fame and recognition as a social psychologist. He developed the theory of cognitive dissonance, social comparison theory, and explored the role of propinquity in forming social relationships.

Educational Information

Dr. Festinger was born in Brooklyn, New York on May 8, 1919. He attended Boys' High School in New York City. He earned a Bachelor of Science from City College of New York in 1939. He pursued his graduate studies at the University of Iowa where he earned both his masters and doctoral degree in psychology in 1942. It was during this time he worked with the prominent social psychologist, Kurt Lewin.

Accomplishments

After he completed his degree he stayed for 2 more years at the University of Iowa as a research assistant. During World War II, he worked as a senior statistician for the Committee on the Selection and Training of Aircraft Pilots at the University of Rochester. In 1945, he rejoined Lewin at the Massachusetts Institute of Technology as an assistant professor at the Research Center for Group Dynamics. When Lewin died in 1947, Festinger moved to the University of Michigan as an associate professor and became the director for the Group Dynamics Center. He next worked at the University of Minnesota in 1951 where he became a full professor of psychology. He moved to Stanford in 1955 and in 1968 made his final move to the New School for Social Research in New York where he was the Else and Hans Staudinger Professor of Psychology. He was awarded the Distinguished Scientist Award of the American Psychological Association in 1959 and was also elected to the American Academy of Arts and Sciences that same year. In 1972, he became a member of the National Academy of Sciences and the Society of Experimental Psychology in 1973. In 1980, the University of Mannheim named Festinger the Einstein Visiting Fellow of the Israel Academy of Sciences and Humanities. Also in 1980 he received the Distinguished Senior Scientist Award of the Society of Experimental Social Psychology.

Contributions

Festinger is most well known for the development of the theory of cognitive dissonance. Dissonance, according to Festinger, results when there is a conflict in an individual's belief system. This conflict results in psychological tension which must be resolved. The conflict is resolved using either a rationalization or ignoring the situation. Festinger began his work on cognitive dissonance while he was at Stanford when he observed that people liked consistency in their lives. Festinger also developed the social comparison theory and how group norms exert pressure on an individual's behavior. In association with Stanley Schacter and Kurt Backlund he developed the social network theory which studied that people form association based on their physical proximity.

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Fetal Alcohol Effects

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Synonyms

Alcohol exposure; Alcohol related birth defects (ARBD); Alcohol related neurodevelopmental disorder (ARND); Fetal alcohol spectrum disorder; Fetal alcohol syndrome (FAS); Partial fetal alcohol syndrome (pFAS); Prenatal alcohol exposure

Definitions

Fetal alcohol effects (FAE), or ▶Fetal alcohol spectrum disorder (FASD), is an umbrella term describing the range of effects that can occur in an individual whose mother drank alcohol during pregnancy. These effects include physical, mental, behavioral, and/or learning disabilities with possible lifelong implications [1].

Description

FAE is one of a spectrum of neurological impairments that can affect a child who has been exposed to alcohol prenatally [1, 3–5]. One of the most severe effects of drinking during pregnancy is fetal alcohol syndrome (FAS), which is one of the leading known preventable causes of mental retardation and birth defects [1, 6]. From a morphological perspective, children with FAE are not as impaired as children diagnosed with FAS, as they usually lack the distinctive FAS facial features and may have normal intellectual functioning. This is misleading as FAE is sometimes described as less serious. Unfortunately, children with FAE are in fact more likely to have negative outcomes such as trouble with school, trouble with the law, and teen pregnancy. Unrealistic expectations are frequently made with these children since more overt signs of impairments (i.e., facial features) are not present. Thus, children with FAE may be without adequate support and this can lead to detrimental ramifications for these children and their families [1].

Alcohol, which is able to cross the placental barrier, exerts its effects on the developing fetus through multiple actions at different sites. In the developing brain, alcohol interferes with nerve cell (i.e., the neuron) development in several ways, including cells not reaching the final destination and even premature cell death [4]. An embryo's susceptibility to distinct FAE defects seems to be related to the timing of maternal alcohol consumption. Specifically, consumption during critical periods of development for various organ systems, regions, or cell types has been linked to particular defects [4, 5]. Duration of the prenatal alcohol exposure and quantity of alcohol has also been shown to factor into the expression of deficits [3, 4, 6]. Regardless, not all children exposed to alcohol will be affected in the same way [4, 6].

In 1996, the Institute of Medicine (IOM) replaced FAE with the terms ARND and ARBD. Children with ARND might have functional or mental problems linked to prenatal alcohol exposure. These include behavioral or cognitive abnormalities or a combination of both. These deficits are often more subtle than is observed in children with FAS and can include difficulties with mathematical skills, difficulties with memory or attention, poor school performance, and poor impulse control and/or judgment. Children with ARBD might have problems with the heart, kidneys, bones, and/or hearing. The term FASD is now being utilized to accentuate that alcohol can exert its effects in multiple ways on a developing child and that no particular set of impairments is "better" or "worse" and seeks to refer collectively to FAS, partial FAS, ARBD, and ARND [1, 2].

Neuroanatomical differences in children exposed to alcohol in utero have also been found. There is evidence to suggest that the basal ganglia, corpus callosum, cerebellum, and hippocampus have irreversible structural changes following alcohol exposure during development of the fetus. These findings indicate that the structural changes could account for several observed deficits and suggest that are global, rather than specific, developmental abnormalities [4, 6].

Children with FASDs might have the following characteristics or exhibit the following behaviors: growth deficiencies; facial abnormalities such as small eye openings (palpebral fissures), flat midface, thin upper lip, and a flat philtrum (groove between nose and upper lip) [1, 2]; poor coordination [1]; learning disabilities; developmental disabilities (e.g., speech and language and motor

delays) [1, 4, 5]; mental retardation or low IQ; problems with daily living; poor reasoning and judgment skills; sleep and sucking disturbances in infancy [1]. In addition, other researchers have delineated that children with prenatal alcohol exposure demonstrate impairments in focused attention, executive functions [2–4, 6], and visual-spatial ability [4, 6]. Learning and memory is also impaired, as children with FASDs show deficits in immediate recall; however, retention and recognition is generally intact [2, 3].

Emotionally, increased levels of irritability have been observed during infancy [4], as well as hypersensitivity to sensory stimuli and self-soothing problems [5]. Children with FASDs also may display impaired social functioning and psychiatric disorders [4, 5], along with hyperactive behavior [1, 2] and impulsivity [5]. Collectively, these problems often lead to difficulties in school and problems getting along with others. FASD is a permanent condition and affects every aspect of an individual's life and the lives of his or her family [1].

It is difficult to ascertain the exact prevalence rates of FAS and other alcohol related conditions, as it varies widely depending on the population studied and the surveillance methods used. Estimates of FAS prevalence rates vary from 0.5 to 3.0 per 1,000 live births in a majority of populations. ARND and ARBD are believed to occur approximately three times as often as FAS [1, 4].

Relevance to Childhood Development

Unfortunately, there is no cure for FASDs. However, treatment is possible. Due to the range of CNS damage, symptoms, and secondary disabilities, treatment approaches vary depending on the individual needs of the child and family. Comprehensive models of treatment are the most effective, as several types of inventions, such as medical, behavioral, and developmental, are needed to ameliorate the negative effects [5].

While these conditions are serious and pervasive, there are protective factors that have been found to help individuals with FASDs. For example, a child who is diagnosed early in life is eligible to receive appropriate educational services and can have access to social services that can assist the child and his or her family. The children who obtain special education are more likely to achieve their developmental and educational potential. In addition, children with FASDs need a loving, nurturing, and stable home life to avoid disruptions, transient lifestyles, or harmful relationships. Children with FASDs who live in abusive or unstable homes or who develop anti-social behaviors are much more likely than those who do not have such negative experiences to develop secondary conditions [1].

Given that FASDs are preventable, several approaches are aimed at reducing the effects of alcohol on developing fetuses. More comprehensive approaches involve social, cognitive-behavioral, medical, and referral services. Public health models emphasizes three different levels of prevention: primary (attempt to cease maternal alcohol consumption before it begins), secondary (utilize early detection and treatment of problems), and tertiary (programs which attempt to change the pattern of behavior of high-risk women who already have a child with FASD). Universal and selective prevention strategies have also been developed. Universal programs attempt to reach all of society, through the utilization of media and policy and environmental change. An example includes warnings on alcoholic beverages. Selective prevention interventions are intended for those individuals who are at high risk for developing problems. Once these women are identified (usually through questionnaires at clinics); measures can be put in place to assist in change. This form of prevention is similar to secondary prevention [4].

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Fetal Alcohol Spectrum Disorder

▶Fetal Alcohol Effects

Fetal Alcohol Spectrum Disorder (FASD)

▶Alcohol Exposure

Fetal Alcohol Syndrome

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Synonyms

FAS

Definition

Fetal Alcohol Syndrome (FAS) is a developmental disorder that results from a developing fetus being exposed to alcohol in utero. FAS is characterized by distinctive neurological, cognitive, and behavioral deficits [8]. In some cases distinct phenotypical traits may also be seen.

Description

FAS is a developmental disorder that affects individuals throughout his or her life. Initially described in the United States by Jones and Smith [3], FAS commonly results in intrauterine growth retardation and physical and neurological deficits. Physical abnormalities may include widely spaced eyes, shortened eyelid length, elongated midface, flattened nose, and a thin upper lip [8]. However, in many children exposed to alcohol in utero, few actually demonstrate the growth and facial abnormalities [6]. Even though they do not have the characteristic growth deficits and other physical abnormalities of FAS, they often exhibit the same cognitive, neurological, and behavioral changes. These features are often referred to as fetal alcohol effects (FAE) or alcohol-related neurodevelopmental disabilities (ARND) [8]. In response to the variability of outcomes in response to prenatal alcohol exposure, many researchers have argued that children exposed to alcohol should be categorized on a continuum [5]. As with most teratogens, the point and magnitude of exposure plays a vital role in the nature of affliction. While the early stages of pregnancy are viewed as the most sensitive periods to adverse impacts of teratogens such as alcohol, exposure at any point prenatal may negatively impact development.

As previously mentioned, children with FAS and FAE often experience neurological deficits. Neurological deficits often include microcephaly, seizures, poor coordination, reduced muscle tone, poor behavioral regulation, below average cognitive ability, inattention, hyperactivity, and learning disorders [2]. Neuroanatomical changes can also occur such as agenesis of the corpus callosum, cerebellar abnormalities, reduced volume of the basal ganglia, damage to the hippocampus, and enlarged ventricles (Randall, 1996).

While factors such as amount of alcohol consumed, frequency of use, and timing of use during pregnancy have all been related to the nature and severity of FAS/FAE residuals, Olson et al. [1] found that a fetus of an alcoholic mother who engaged in "binge" drinking is more at risk for deficits associated with FAS.

Relevance to Childhood Development

Individuals afflicted with FAS often experience lifelong deficits in cognitive ability, behavioral functioning, and adaptive functioning [7]. Infants experience low birth weight, feeding problems, poor sleeping patterns, and irritability while children often experience attention, memory, learning, gross, and fine motor skill deficits. Enuresis (bed-wetting), language and other communication disorders, Attention-Deficit/Hyperactivity Disorder (AD/HD), mental retardation, and learning disorders are also common [8].

Executive functioning also appears to be greatly affected with FAS indicating frontal/ prefrontal involvement. Children with FAS appear to perform less well than same-aged peers when matched for IQ on tasks of verbal fluency, design fluency, cognitive set shifting, and planning [2]. These executive deficits may also contribute to difficulties with proper socialization. This is seen in fact that as children with FAS grow older, poor social judgment, poor interpersonal skills, and antisocial behavior are commonly seen [2].

Recent studies have also found that children with FAS experience greater difficulty on certain tasks of memory and learning. Mattson et al. [4] found that children on a list learning task experienced more difficulty memorizing new information than retaining and retrieving what they had previously learned. Recognition memory and the ability to benefit from priming and cueing also appear to be relatively intact in children with FAS [2].

In sum, children with FAS and FAE experience a great deal of deficits in cognitive abilities such as language, memory, learning, and executive functioning that can contribute to learning difficulties in school. Social skill deficits may also occur which creates further difficulties in proper adjustment and education. It is a lifelong disorder that will continue to create difficulties into adolescence and adulthood. However, FAS is easily preventable with early intervention and education as well as treatment for pregnant mothers with alcohol dependence and/or alcohol abuse.

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Fetal Alcohol Syndrome (FAS)

►Alcohol Exposure
►Fetal Alcohol Effects

Fetal Death

►Stillbirths

Fetal Development

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Definition

Weeks 9–40 of gestation or weeks 11–41 of a pregnancy.

Description

The period known as the fetus ranges from week 9 of gestation until birth. During this period the developing fetus grows rapidly. During the third month the head of the fetus is extraordinarily large in comparison to the rest of the body. The eyes move to their proper location and the organs, muscles, and nervous system become more structured. The face is well formed and the eyelids close. The tooth buds also appear. In addition, male and female external genitalia appear. Fine hair, lanugo, begins to develop on the head and bones develop and become harder. Sucking motions are made. Muscle tissue develops and the fetus begins to move its feet, hands, arms, and toes. However, the movements are so slight they cannot be felt by the mother at this point ([2], p. 173, [3], p. 123, [1], p. 89).

The fourth month brings rapid growth in length though, the weight of the fetus does not increase much. The fetus is able to hear and eye movement begins. At this point in the pregnancy, the mother may begin to feel slight movement of the fetus. ([3, 4], p. 124).

During the fifth month fine, silky hair called lanugo cover the entire body of the fetus. Due to increased muscle development the fetus is more active and can be felt by the mother. The lungs develop but are not viable outside of the mother's body ([3, 4], p. 124).

In the sixth month of fetal development all parts of the eye have developed and are able to open and close. Footprints and fingerprints are developing and fingernails are present. The respiratory system is still developing and is able to exchange gas while the nervous system can now control some bodily functions. Toward the end of this month the brain develops rapidly ([3, 4], p. 124).

The fetus begins to gain weight and fill out during the seventh month. The brain can support rhythmic breathing but the lungs are still immature. Eyelashes and toenails grow ([3, 4], p. 124).

In the eighth month the fetus has gained fat under the skin. The lanugo begins to disappear and the fingernails reach the end of the fingertips ([3, 4], p. 124).

During the final month of fetal development, the fetus steadily gains weight and weighs about 7 lb. The lunugo is almost gone with the exception of the upper arms and shoulders. Body structures are being refined and the brain expands during this time ([3, 4], p. 124).

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Fetal Distress

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Definition

The fetus experiences some type of complication.

Description

Fetal distress may be caused when the fetus does not get enough oxygen ([1], p. 80) and can be determined by the use of a fetal monitor. Fetal abruption (early separation of the placenta from the wall of the uterus), compression of the umbilical cord, infection of the fetus, or the mother is in a position which puts pressure on the major blood vessels and deprives the fetus of oxygen.

In utero the healthy fetus will have a stable and strong heartbeat. In addition, the fetus will move. A fetus in distress will react by having a decreased heart beat, slow their movements or even stop moving. In addition, the stressed fetus may pass their first stool (meconuim) while still in utero. An oxygen deprived fetus is in immediate danger.

If a mother suspects the fetus is in distress she should count the number of kicks in a 2-h period. If the fetus is not this active the obstetrician should be called. To take pressure off of the major blood vessels the mother can lie down on her left side.

To determine if a fetus is in distress the mother will be put on a fetal monitor. This consists of a large belt like device being strapped around the mother's abdomen. The fetal monitor will determine if the fetus' heartbeat is sufficient. In addition, the mother may be given oxygen and an IV. In case these treatments do not eliminate the fetal distress, a speedy delivery is necessary. This may mean the obstetrician will use forceps in the delivery to extract the fetus. Another possibility is vacuum delivery. A vacuum delivery involves a small rounded cup that attaches to the fetus' head. The cup is in turn attached to a hose that creates a vacuum that then pulls it out of the birth canal. Often an emergency cesarean section on the mother is performed in order to reduce the fetal distress.

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Fetal Survival

►Age of Viability

Fetus

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Definition

A fetus is defined as an unborn or unhatched vertebrate. The word fetus specifically refers to the unborn child during the time when all of the major structures and organs have been formed, typically after the eighth week of pregnancy. Prior to that point, the fetus is referred to as an embryo. The fetal stage continues until birth.

Description

Fetus is the word used to describe unborn offspring in the uterus of vertebrate animals. This stage occurs between seven to eight weeks after the fertilization of the egg. At this time the embryo has taken the basic shape of a newborn and all major structures have been formed. It is also at this point in development that the risk of miscarriage decreases significantly.

During this stage the fetus is surrounded by amniotic fluid that enables it to move. Oxygen and nutrients are provided through the placenta and umbilical cord. Nurtured in this protective environment, the body grows larger and more defined and organ development is completed. At the start of the fetal stage the fetus typically weighs about 8 g and measures 1.2 in. From that point until birth, the fetus continues to gain weight and refine the functionality of their organs. This growth allows the fetus to be less sensitive to damage from the environment than the embryo was. However, exposure to certain toxins can still cause physiological abnormalities or minor congenital malformations. Some of these fetal disorders may cause the birth of an infant before the complete gestational

time period has passed. At the 20 or 22 week point, a fetus is considered developed enough to be viable outside of the womb.

Another interesting phenomenon occurs at the beginning of the fetal stage. From 8 weeks postmenstrual age onward, the fetus begins to move in a distinct pattern. The pattern is identical to the movement patterns of infants immediately after birth. The pattern of these movements have been studied, as alternative patterns are a reliable indicator of brain dysfunction and has been used as a predictor of the development of cerebral palsy.

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Suggested Resources

National Institute of Childhood Health and Human Development: http://nichd.nih.gov/

Society for Research in Child Development: http://www.srcd.org/

Fidelity

►Validity

Fidgety

►Hyperactivity

Field Observation

►Natural Observation

Fight or Flight

►Anxiety

Fighting

►Physical Aggression

Filial Family Therapy (FFT)

►Filial Therapy

Filial Therapy

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Synonyms

Child-parent relationship (CPR) training; Child relationship enhancement family therapy (CREFT); Filial family therapy (FFT)

Definition

Filial therapy is a method of enhancing family relationships in which mental health professionals (such as counselors, psychologists, or clinical social workers) teach and supervise parents use of key elements of child-centered play therapy (e.g., [1, 4, 12, 17]) to help their own children with behavioral, emotional, adjustment, attachment, and self-esteem difficulties. The American Heritage Dictionary defines "filial" as: of or pertaining to, or benefiting a son or daughter (American Heritage Dictionary, 1982, p. 503). Thus it is a parental therapy for the daughter or son, in which the counselor helps the parent to learn and implement skills for special play time in order to be a therapeutic agent for her or his child. While filial therapy employs the special emotional bond possible between parent and child to help the children with difficulties ranging from normal adjustment issues to trauma, it also improves parental self-efficacy and stress levels as it is an intervention in the parent-child relationship.

Description

Development History and Research

Filial Therapy was introduced and developed by Bernard and Louise Guerney (see [10, 11, 25]) to empower parents

to advance or augment the benefits possible from therapeutic relationships frequently provided by mental health and school counselors, psychologists, social workers and professionals from related fields. The approach has continued to rapid growth in research and application in recent years. Its effectiveness has been demonstrated with child populations defined by various problem or life stress areas including conduct problems, stuttering, learning problems, chronic illness, problems related to immigration status, and learning disabilities [6, 15]. Promising results have been found for parents from differing ethnicities and life situations (e.g., Native American [8]; Chinese American [29]; parents with chronically ill children [27]; foster parents [7]; and incarcerated parents [13, 16]; single parents [2]; nonoffending parents of children who have been sexually abused [5]; and German mothers [9]).

Particularly important to child and family development, the effects of filial therapy have been shown to remain strong over time. For example, Sywulak [26] confirmed that a significant increase in parental child acceptance was maintained after 4 months. Stover and Guerney [25] found an increase in mothers' reflective statements and a decrease in directive statements maintained 12 months after filial therapy. Sensue [24] reported lengthy maintained results. For 16 elementary-age children, the behavioral gains that were demonstrated as the result of 4 months of filial therapy were still present after 3 years.

Rennie and Landreth [21] reviewed the research in filial therapy, looking particularly at changes in parental characteristics (empathy, acceptance, stress, and family environment) and in children (adjustment, behavioral problems, play session behavior, and self-concept). They concluded that filial therapy is a powerful intervention that increased "parental acceptance, self-esteem, empathy, (and created) positive changes in family environment, and the child's adjustment and self-esteem while decreasing parental stress and the child's behavioral problems" (p. 31). In a meta-analysis of the effectiveness of filial therapy, Ray et al. [20] found filial therapy to be an effective treatment for children's problems, reporting a quite high effect size, 1.06.

Brief Overview

In filial therapy, a play therapist trains parents, who become therapeutic change agents by offering their children empathy, genuineness, and acceptance in play sessions [10]. The therapist (mental health professional) takes the role of the parent(s)' guide, teacher, supervisor, supporter and challenger as the parent develops skills to provide a particularly structured, child-directed, child-centered, hour or half hour of weekly play, focused on parent-to-child empathy, unconditional acceptance of the child's self-expression (within limits necessary to maintain safety and to facilitate self-expression, and the parent-child connection). These 30–60 minutes of specialized parent-child interaction/play time is often referred to as special play time (SPT).

In contrast to many parent training interventions that require parents to use new relationship or interaction skills consistently across time, a daunting task for many stressed parents, filial therapy focuses change and new skills in the 30–60 minutes of weekly SPT. The therapist's focus is on helping the parents succeed with the unique relationship provided in SPT. Once that success is well begun, new ways of interacting naturally emanate throughout the week from SPT. Parents benefit from greatly expanded empathy and unconditional positive regard, considered by many in the counseling and psychotherapy field to be the core conditions of therapeutic relationships (especially counselors and therapists with interest in the person-centered approach to counseling, psychotherapy and other relationships – see [3, 22, 23]). Parents also learn empathic methods for limit setting when needed to facilitate the child's self-expression and parental connection in SPT. Practitioners of filial therapy often describe "the filial glow" evident in parents and children once the parent is succeeding in connecting through SPT.

Filial therapy is based on helping parents approximate, as closely as possible, the therapeutic skills of CCPT. Therapists provide significant didactic instruction, demonstration, and mock practice before parents begin SPT with their children under the supervision of their therapist. Therapists also help parents develop a specialized kit of toys, designed to best facilitate the child's therapeutic self-expression in SPT.

Therapists using filial therapy should be well-trained and well-experienced in CCPT. Especially for situations that have included significant trauma for the child, filial therapy is often provided as an addition to CCPT, after the child has achieved mastery stage [19] in CCPT. The primary professional organization focused in promoting filial therapy and associated family relationship interventions is the Association for Filial and Relationship Enhancement Methods (AFREM – afrem.org). The National Institute for Relationship Enhancement (NIRE – www.nire.org) has served as the major training, service and research institute for filial therapy, CCPT and related interventions for the past 25 years. Along with Bernard and Louise Guerney at NIRE, Garry Landreth, of the University of North Texas, is one of the major trainers and scholars of

filial therapy (e.g., see [2, 5, 12, 18]) and the University of North Texas Center for Play Therapy has been the major university based training, service and research center for play therapy since it began in 1988. Landreth [17, 18] developed a 10-week training model that has been well-researched across 14 studies involving more than 400 participants. A meta-analysis of studies utilizing the Landreth 10-session model demonstrated an exceptionally high effect size of 1.57. A commonly used and highly effective parent training manual for filial therapy is *Mastering the Magic of Play*, by Mary Ortwein (1997, Ideals). Another highly recommended filial parent training manual is *Filial Therapy: Strengthening Parent-Child Relationships Through Play, 2nd edition*, by Rise VanFleet (2005, Professional Resources Press).

As Landreth [17] points out, filial therapy can be an effective intervention for parents of children experiencing behavioral and emotionally based problems, but is also appropriate for families experiencing difficult times in normal development, times when the parent needs to strengthen her sense of her child's emotional reactions and needs (e.g., around the birth of a new baby or new adoption, when children from different parents are being blended through a new marriage, during periods of grief and loss, around the time of a family move, and through other significant changes). Filial therapy is considered appropriate through the age ranges projected for CCPT, usually considered ages 3–12 years, with some therapists modifying toys to be more age appropriate for 11 and 12 year children.

While filial therapy is an option for most families, there may be some parents who would likely be unable to use the model. Watts and Broadus [28] quote Garry Landreth as suggesting that exceptions include parents who are severely retarded and may be unable to learn the skills, parents who are excessively angry with their children and may need individual counseling before they could begin the new relationships required in filial therapy, and parents who are out of touch with reality (e.g., severe psychosis). The approach also requires a significant commitment to consistency. It may be that some parents self-select out of the treatment due to an unwillingness or inability to commit to the training required. Practitioners often report that once parents are engaged in SPT, the new relationship is highly self-rewarding to the parent, which strongly encourages consistent application. Additionally, when filial therapy is provided as an addition to child-centered play therapy, parents have usually developed high levels of trust in the therapist, and thus are willing to engage in the necessary training, and many parents are particularly ready to seek ways to greater relationships with their children, after seeing their children succeed in CCPT.

Relevance to Childhood Development

Johnson et al. [14] point out that filial therapy is a family system intervention. They explain that it: (1) requires family involvement, (2) takes the focus off the child as the identified problem, (3) often helps parents see their role in the problem, (4) enhances parental leadership by strengthening the generational boundary between parents and children, (5) increases differentiated relating and reduces polarization between parents and children, and (6) highlights unhelpful systematic sequences.

Filial therapy is one of the most promising therapeutic interventions for troubled children and parents. It capitalizes on the potential of positive parent child bonds through teaching and supervising parents in becoming therapeutic agents for their children. It provides a relatively stigma free way for parents to help their children with behavioral and emotional difficulties in ways that in turn help the parents become more effective and less stressed, especially through forming balanced and healthy parent-child attachments. It appears effective across a wide range of parent-child problems and population groups and may be particularly promising for foster and adoptive families in need. Filial therapy is a dynamic family intervention that provides opportunities for very positive change for families and children in need.

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Fine Motor Skills

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Definition

More precision and steadiness than the skills developed by gross motor skills. Fine Motor Skills Students' proficiency in using small motor muscles for tasks such as writing, buttoning or grasping [2].

Description

Fine motor skills, including reaching, grasping, and manipulating objects, it is in *ne motor skills* can be defined as coordination of small muscle movements which occur e.g., in the fingers, usually in coordination with the eyes. In application to motor skills of hands (and fingers) the term *dexterity* is commonly used.

The abilities which involve the use of hands, develop over time, starting with primitive gestures such as grabbing at objects to more precise activities that involve precise hand-eye coordination. Fine motor skills are skills that involve a refined use of the small muscles controlling the hand, fingers, and thumb. The development of these skills allows one to be able to complete tasks such as writing, drawing, and buttoning [1].

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Fire Setting

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Synonyms

Firestarting

Definition

Fire setting is a complex pattern of behavior in which a child or adolescent starts fires, either accidentally or intentionally. Factors in classifying fire setting include

intentionality, damage caused, frequency, and interest in fire vs. actually starting fires. Fire-setting has a variety of contexts and causes, and may be an aspect of the clinical presentation of other psychological disorders such as conduct disorder.

Description

The literature is somewhat mixed as to what exactly is meant by the label of fire setter [5]. The term firesetting is often used synonymously with arson; however, arson is a legal term that is applied in situations when an individual engages in intentional firesetting and is aware of the potential consequences of the behavior [7]. Some fire setters, usually younger ones, do so out of curiosity or accidentally. They do not intend to cause harm and often show remorse [9]. Of those who intentionally start fires, some do it as a cry for help or for attention. These children often have a diagnosable condition such as major depressive disorder or attention deficit/hyperactivity disorder. They may not mean to cause harm, but set fires in an attempt to bring attention to their situation and to express their emotions. These children often have histories of fire play, and lack the skills or abilities to appropriately express themselves and solve problems [9]. For other children or adolescents, fire setting is simply considered a severe form of antisocial behavior [8]. These delinquent fire setters may have an external gain for their behavior. They often engage in other antisocial behaviors and conduct problems as well, and the fire setting behavior may be part of a group activity [9, 10]. Finally, a fourth group of children who set fires have a severe emotional or mental illness such as mania or schizophrenia. For these "severely disturbed fire setters," the behavior is attributable to their mental illness. Pyromania is included under this category, but it is rare to see this in juvenile fire setters.

Relevance to Childhood Development

Childhood fire setting is a serious and prevalent societal problem, exhibited primarily by males. Almost 250,000 fires were set by juveniles in 1993 [10]. Children and adolescents have accounted for roughly half of all arson arrests in recent decades, including 2006 [3, 10]. Previous studies suggest that typically developing children often engage in fireplay and firesetting; however, only a small number of children become repetitive firesetters [7].

Many factors determine whether a child actually engages in fire setting behavior or not [10]. Risk factors for childhood fire setting can be discussed in terms of both individual as well as environmental characteristics (e.g., family). Risk factors appear to be cumulative; the number of risk factors affects the course and prognosis of the fire setting behaviors [8].

High levels of aggression, impulsivity, delinquency, interest in fire, social skills deficits, attention-seeking and risky behaviors, and externalizing emotions are commonly seen in children who light fires [9]. Some other risk factors include past fire play, being around people who smoke, and knowledge of materials that burn [5]. The attention individuals receive after setting fires is often reinforcing, which maintains the behavior [9].

Further, individuals who engage in more persistent fire setting may have poor social judgment, problems in peer relationships, and evidence higher levels of other forms of antisocial behavior. Children who set fires may have social skills deficits or difficulties in appropriately expressing their emotions, thus setting the fires serves this function for them [9]. Many fire setters have high levels of impulsivity and difficulty controlling their thoughts and actions [9]. They may show more aggression and engage in other antisocial acts such as lying and stealing. Individuals who set fires tend to be more impulsive, show less remorse or guilt, and have exhibited more cruelty to animals [5]. Fire setters also often engage in other antisocial behaviors such as property destruction (other than by fire setting), physical aggression, and vandalism [5]. Individuals who exhibit many of these other behaviors in addition to the firesetting are often diagnosed with conduct disorder in childhood or adolescence.

A history of fire involvement and playing with matches is consistently shown to be a predictor of recidivism [4]. Among children who have set fires, impulsivity is the individual characteristic that most often determines whether they continue [8]. Other research has shown that conduct problems, specifically covert antisocial behaviors, predict continuation of fire setting behaviors in children and adolescents [4]. Aggressive acts become more deviant as a child grows older. Age is also a risk factor for future fire setting. When older children and adolescents light fires, they are more likely to engage in such behavior in the future [4].

With regard to parental and family factors, children who have continually set fires often have parents who use harsh and inconsistent discipline, display less warmth, and have interpersonal problems [5, 8]. Poor parental supervision and lax child rearing have also been shown to contribute to the development of fire setting behaviors. In some cases, parents can be hostile and aggressive, and they tend to be less educated [9]. In addition, there may be a higher level of family dysfunction for children who set

fires [5]. There is a correlation between repeated fire setting in children and parental mental health issues and problems in the family. Children who have continually set fires were more likely to have depressed parents and more hostility among family members, including violence among parents [8]. They may be more likely to come from single parent homes [8] and to observe fathers who are alcoholics and/or abuse animals [2]. Living with a person who smokes greatly increases the risk of children becoming involved with fire as well [10].

Interventions utilized with children who engage in firesetting behaviors often include individual, family, and community levels. While treatment outcome studies are relatively sparse in the literature, research suggests that fire safety education programs targeting both children and their families have been found to improve both fire safety knowledge and skills [6] and are often included in treatment planning. Additionally, clinical interventions such as cognitive-behavior treatment and family therapy have been used in order to address behavioral, emotional, and social difficulties of the child, as well as parental and family functioning.

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Firestarting

►Fire Setting

First Language Acquisition

►Language Acquisition

First-Generation Immigrant Children

►Immigrant Children

Fixed Interval Schedule

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Synonyms

Scalloped response pattern

Definition

A schedule of reinforcement in which the first response is reinforced only after a set amount of time has elapsed.

Description

A fixed-interval (FI) schedule has two components: (1) it requires the passage of a specified amount of time before reinforcement will be delivered contingent on a response and (2) no responding during the interval is reinforced, only the first response following the end of the interval is reinforced [1].

An FI schedule of reinforcement results in high amounts of responding near the end of the interval, but a much slower rate of responding immediately after the delivery of the reinforcer. This post reinforcement pause and then subsequent acceleration in responding results in a scalloped pattern of responding. B. F. Skinner's early research with pigeons identified the scalloped pattern, which was also consistently found in mice, monkeys, and human children [3]. More recent research is skeptical of

humans responding in a scalloped pattern, however it is agreed that a post-reinforcement pause followed by increased responding is typically found when using an FI schedule [2]. Examples of true FI schedules are difficulty to find in everyday life. First, they must be distinguished from fixed time schedules where reinforcement is delivered only after a certain amount of time has elapsed. Second, there are often other factors that interfere to make the schedule less than a true FI.

In educational and other applied settings, there are devices that provide a vibration to signal the end of an interval and that reinforcement is available for the next target response. For instance, a teacher could use one of these and set the timer for 2 min. At the end of the 2 min period, the student's next correct response would be reinforced. In such a real life setting, FI schedules have advantages and disadvantages. Some of the advantages of an FI schedule are they produce an overall low but consistent rate of responding and they allow for reinforcement to be provided at greater intervals, (i.e., hourly, weekly, etc.) versus a more frequent basis. Some of the disadvantages of FI schedules are that they tend to produce irregular performance and are susceptible to extinction due to infrequent reinforcement. Also, some people may have a tendency to increase their rate of response as the end of the interval (i.e., availability of reinforcement) draws near, which can result in sloppy work or incomplete assignments.

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Floppy Baby Syndrome

►Hypotonia

Floppy Infant Syndrome

►Hypotonia

Fluency

►Standard Celeration Charting

Fluid Intelligence

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Synonyms

Analytic intelligence; Fluid reasoning; Gf

Definition

The ability to solve novel problems using inductive and deductive reasoning abilities, sequential thinking, and quantitative abilities. It includes abilities to draw inferences, identify and classify relationships, and to change reasoning and problem solving approaches based on demands of the situation [2].

Description

Part of the Cattell-Horn-Carroll (CHC) theory of cognitive abilities [1], Fluid Intelligence is considered a *broad* ability composed of a series of *narrow* abilities including *general sequential (deductive) reasoning* (RG), *induction* (I), *quantitative reasoning* (RQ), *piagetian reasoning* (RP), and *speed of reasoning* (RE).

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Fluid Reasoning

►Fluid Intelligence

Fluoxetine

Synonyms

Prozac; Sarafem

Definition

A selective serotonin reuptake inhibitor (SSRI) antidepressant most commonly used to treat major depression; however, it is also used to treat obsessive-compulsive disorder (OCD), panic disorder, bulimia nervosa, and premenstrual dysphoric disorder (PMDD).

Description

Depression is believed to be caused by an imbalance of the neurotransmitter, serotonin. Serotonin is known to affect mood, emotions, sleep, and appetite. Fluoxetine corrects the imbalance by preventing the reuptake of serotonin into the synaptic clef; therefore, increasing serotonin in the brain and alleviating depression symptoms.

Fluoxetine has some adverse side effects. It can cause nausea, headaches, insomnia, anxiety, drowsiness, loss of appetite, skin rashes, and vasculitis. Also, blood pressure can increase; some seizures and sexual dysfunction have been reported. When coming off fluoxetine withdrawal symptoms such as anxiety, nausea, nervousness, and insomnia can occur. There is also an increased risk of suicidal ideations. Fluoxetine should not be taken while pregnant or when nursing.

Flurazepam

Flurazepam, also marketed under the brand names of Dalmane and Dalmadorm, is a psychiatric drug of benzodiazepam derivation. Flurazepam possesses anxiolytic, anticonvulsant, sedative and skeletal muscle relaxant properties. Flurazepam produces a metabolite with a very long half life of up to 25 hours. It may stay in the blood stream up to four days. Flurazepam demonstrates effects approximately a half to one hour after oral administration. It is typically used for the treatment of insomnia. It acts by relaxing muscles, reducing anxiety and causing sleepiness. It is typically used on a short term basis and not approved for children under the age of fifteen. It has been used off label to treat anxiety. In many cases, however, it causes sedation for extended periods of time often into the next day and therefore may not be a good long term sleep aid.

Focused Attention

►Selective Attention

Food

►Nutrition

Food Refusal/Selectivity

►Feeding Disorder

Formative Assessment

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Synonyms

Assessment for learning; Formative evaluation

Definition

The monitoring of progress during instruction that includes useful feedback, opportunities for improvement, and information helpful for tailoring future instruction.

Description

The concept of formative assessment [2–4] has been researched and promoted over the last decade as a means of reconceptualizing classroom assessment, and even the teaching and learning process. Formative assessment, conducted during a course of instruction, is often termed assessment *for* learning to distinguish it from traditional summative assessment, such as an end of unit test after instruction (assessment *of* learning). The function of formative assessment is to promote learning. The function of summative assessment is to document learning.

In formative assessment, "activities. . . are undertaken by teachers to provide feedback to students to enhance their motivation and learning. . ." [4]. To qualify as formative, that feedback must offer learners specific suggestions for future actions that will improve their learning. Examples of formative assessment activities might include students explaining their reasoning behind a choice or position on a political issue in a social studies class with teacher feedback, observation of students' performance of a gymnastics routine with both teacher and students making suggestions for improvement, an ungraded quiz covering recent biology

readings for student self-assessment, or quick writes at the end of class asking students to describe their understanding of and questions about the content addressed that can contribute to later discussion and instruction.

Key components of effective formative assessment include student understanding of the academic learning goals, meaningful tasks involving critical thinking and dialogue between teacher and student, and student self-assessment, as well as feedback to students with explicit information on how to close the gap between where they are and what they are aiming for, and then opportunities to close that gap [2–4].

The use of formative assessment in the classroom has been shown to enhance student achievement as effectively or more effectively than many traditional academic interventions such as one-one-one tutoring [3]. Other recent research [5, 8] has demonstrated that formative assessment can dramatically increase student achievement, especially among lower achievers.

To account for these findings, researchers have suggested that emphasizing individual improvement and rewarding growth rather than focusing on comparison to others and competition, leads to stronger motivation, persistence, and engagement [1, 9]. In contrast, evaluation practices such as grading on a curve, giving special recognition to high achievers and emphasizing correct answers more than the process of learning may allow high achievers to thrive, but may influence less gifted students to reduce effort, avoid difficult tasks or classes, and disengage. Thus, quality formative assessment "redefines the emotional dynamics" of assessment [7]. Rather than exclusively using (summative) assessments as a threat to increase anxiety to maximize motivation and learning, use of formative assessment encourages positive emotional states with the intent of producing confidence, optimism and persistence among students. In addition, the emphasis in formative assessment on the development of metacognition, the process of analyzing and thinking about one's own thinking (e.g., using skills such as self-assessment, self-correcting errors, and actively monitoring one's own progress toward a goal) can be especially helpful for lower achievers [6].

Relevance to Childhood Development

Because use of formative assessment strategies has been shown to augment student learning and motivation, the basic elements of formative assessment can be recommended to teachers and incorporated into many types of interventions to enhance children's academic development and improve attitudes toward school and learning.

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Formative Evaluation

►Formative Assessment

Formative Year

►Infancy

Foster Care

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Synonyms

Kinship care; Out-of-home placements; Parental rights termination

Definition

Temporary care provided for children who are unable to live with their biological parents and are typically placed by state agencies [4].

Description

In the United States over 500,000 children are currently in some foster care placement [1]. Some of the reasons for foster care placements include cases where children have been abused or neglected, have severe emotional or behavioral problems, or there have been parental problems such as drug abuse, incarceration, abandonment, serious illness, or death [1]. The largest population of children in foster care is African American children who represent two thirds of all children and foster care and are more likely to remain in foster care for longer periods of time [1]. However, two thirds of children in foster care will be reunited with their parents within 2 years. Unfortunately, many children spend years waiting in the system to either go back to their biological families or be adopted. Most states encourage reunification of biological families, but if that is not possible, children can spend years waiting for other permanent placements [1].

About one quarter of the children in foster care have serious problems including emotional, behavioral, and developmental delays or disturbances. Over the past few years the number of foster parents available has decreased, while there has been an increase in foster care placement with relatives (kinship care) [1]. Some of the different types of foster care settings include relative and non-relative foster homes, group homes, emergency shelters, and residential facilities. Data from 2005 show that around 70% of foster care placements are relative or non-relative foster family homes. The main goal of foster care is that children will be placed in a permanent setting in which they will have a loving and stable environment in which to thrive [1]. Statistics from 2005 show that of the children who exited foster care that year, over 50% went back to their parents and 18% were adopted [2]. Children can be placed in foster care at any point from birth to age 18. There is a growing problem of children who reach age 18 "aging out" of foster care without the proper educational, emotional, or financial support to maintain lives as productive adults [3].

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F

Fragile X Syndrome

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Synonyms

FXS; Martin-Bell syndrome

Description

Fragile X Syndrome, originally called Martin-Bell syndrome, was first described by Martin and Bell in 1943 as they described a large family in which multiple males were affected with mental retardation (MR) which appeared to be inherited from women who either were not affected with mental retardation or who were minimally affected with MR. Since that time, Fragile X Syndrome (FXS) has been identified as the most commonly known inherited cause of mental retardation. FXS is caused by a mutation on the fragile X mental retardation 1 gene (*FMR1*), located on the X chromosome. The mutation results in a decrease in, or lack of, production of the fragile X mental retardation protein (*FMRP*) leading to a wide range of learning disabilities, emotional problems, physical features, and high comorbidity with other disorders, such as ADHD and autism. There is no known cure for FXS and the best treatment includes a broad range of behavioral interventions and pharmacotherapy.

Genetics

FXS is the first known disorder to be associated with a trinucleotide sequence (CGG). This sequence is located on the X chromosome at the Xq27.3 locus [9]. Within the general population, the number of CGG repeats varies between 6 and 54. This results in the normal expression of *FMR1* gene and the appropriate production of *FMRP*. However, for some, through a process not entirely understood, an observed expansion in the number of repeats occurs. Specifically, an expansion from a premutation

state (between 55 and 200 CGG repeats) to full mutation may occur when the *FMR1* gene is passed on to the next generation via a female. Those with the premutation were previously thought to be unaffected by the inherited mutation on the *FMR1* gene as the production of *FMRP* is unaltered, however, recent research has shown that those with the premutation may have higher prevalence rates of psychological, cognitive and physical issues than the typical population. For instance, female carriers of the premutation have a higher incidence (20–28% of women carriers) of premature ovarian failure, a cessation of the normal functioning of the ovaries in a woman younger than age 40 (this is not to be confused with menopause as women with premature ovarian failure are much more likely to continue to menstruate, even if irregularly) [9]. Women with the premutation also present with increased rates of depression. Male carriers are prone to develop fragile X associated tremor/ataxia syndrome (FXTAS). This disorder affects 30% of premutation older males and often begins with an intention tremor or ataxia. Then, as the disorder progresses, disruption in activities associated with daily living occurs in addition to a decreased sensation in lower extremities, Parkinsonian features, psychiatric symptoms including anxiety, progressive memory and executive function deficits along with attention switching problems [8].

In females, premutations are unstable and can expand further when passed down to the next generation. Males with the premutation pass the premutation to their daughters (X-linked disorders) but unlike in female transmission, the number of repeats does not expand in size. In female transmission of the premutation, the greater the number of repeats found on the mother's X chromosome, the greater the likelihood of expansion to full mutation in next generation. If the mother possesses more than 100 repeats and passes the mutated X chromosome to her child, that mutation will expand to a full mutation 100% of the time [9]. Once expansion of the trinucleotide sequence CGG exceeds 230, methylation, or silencing, of a portion of the *FMR1* gene and surrounding areas occurs resulting in a disruption in the production of *FMRP*. Not everyone with the full mutation is affected in the same way. That is to say, individuals with the full mutation may experience partial or full methylation which in turn determines *FMRP* production. Nonetheless, the greater the number of repeats the more likely one experiences full methylation.

Another form of inheritance is mosaicism, which occurs in up to 5% of those diagnosed with FXS. In those with a mosaic form of FXS, some cells have unmethylated *FMR1* genes and other cells have fully mutated genes resulting in varying amounts of *FMRP* production. Those with a mosaic inheritance generally present with fewer cognitive deficits and overall higher functioning abilities as *FMRP* production positively correlates with level of functioning [13].

Females, on average, are less affected by the inheritance of the full mutation. This is, in part, due to typical methylation that occurs regardless of mutation status. Since females possess two X chromosomes, inactivation of one of the X chromosomes occurs naturally via methylation in each cell. Contingent on the ratio of cells that possess methylated affected versus methylated unaffected X chromosomes (referred to as the activation ratio), the impact of FXS may be limited as there may be a varying degree of normal X chromosome expression. In other words, more *FMRP* is produced and fewer symptoms are observed when there are more mutated X chromosomes turned off and more unaffected X chromosomes left on [2].

Diagnosing FXS is conducted via DNA testing. Specifically, the *FMR1* gene is evaluated and the number of CGG repeats is determined. This testing enables the diagnosis of either the premutation or the full mutation. As with many disorders, the definitive prevalence rates for those with FXS is unknown, however, recent reports have stated the prevalence for full mutations to be at 1 in 4,000 for males and 1 in 9,000 for females. The prevalence of premutation carriers is greater at 1 in 259 females and 1 in 700 males [9].

Mechanism of Action

Although the FXS brain appears to be grossly normal in comparison to typically matched peers, in the absence of *FMRP*, abnormal dendritic development occurs in which an overgrowth of immature spines is observed [4, 10]. The mechanism by which this occurs is unknown, but is hypothesized to be attributed to enhanced metabotropic glutamate receptor (mGluR) activity resulting from the lack of *FMRP* [3]. Essentially, the activation of mGluR leads to mRNA translation at synapses producing an increase in long-term depression (LTD), a process that decreases synaptic effectiveness, and a weakening of AMPA receptors. *FMRP*, which is widely expressed in a typically developing brain, functions as a repressor of mRNA translation (negative feedback loop). As a result, AMPA is made available at the synapse thereby facilitating long-term potentiation (LTP), a process that increases synaptic strength, rather than LTD [3]. In the case of FXS, in which there are lower amounts of FMRP available or none at all, the overabundance of mRNA translation results in increased LTD and decreased AMPA activity at the synapse resulting in an increased density of immature dendritic spines.

The overactive mGluR signaling is hypothesized to be responsible for many features of FXS such as epilepsy, cognitive impairment, developmental delay, and loss of motor coordination [8].

Physical Phenotype

Those diagnosed with FXS have distinct features which include a long face, a high arched palate, and large and long ears. Also observed in those with FXS are flat feet, soft skin, and hand calluses. A characteristic unique to FXS is the single palmer crease seen in approximately 51% of males. Additionally, an increased prevalence of connective tissue dysplasia is found in those with FXS. This connective tissue dysplasia is thought to contribute to other common physical features of FXS including: hypotonia, hyperextensible finger joints, double-jointed thumbs, mitral valve prolapse, cardiac murmur, hernias, scoliosis and higher than average rates of otitis media. Growth abnormalities are also more likely to be observed in those with FXS. For example, young children with FXS may present with a large head circumference and an initial overgrowth in height and weight; however, during puberty, many with FXS experience a slowing of growth leading to an overall shorter stature. Adolescent and adult males with FXS also tend to develop macroorchidism (i.e., large testicles) sometimes reaching a volume two to three times the normal size [9].

Neurological Presentation

Epilepsy is the most common neurologic abnormality in FXS presenting in 15–20% of males diagnosed with FXS [13]. Seizures typically begin in childhood or adolescence and are usually seen to either occur less frequently by adulthood or have disappeared altogether. Anticonvulsant medications (e.g., carbamazepine (Tegretol)) have been found to be very effective in controlling seizure activity in individuals with FXS. The cause of epilepsy in individuals with FXS is not yet known, however, it is hypothesized that the dendritic spine abnormalities seen in the FXS brain may lead to excessive neuronal excitation and potentially cause seizures [9].

Cognitive Deficits

Males with FXS generally present with moderate to severe intellectual disabilities (mental retardation) displaying deficits in cognitive and executive functioning, verbal reasoning, abstract /visual ability, quantitative skills, short-term memory, adaptive and daily living skills and communication [9]. High functioning males may have typical, or slightly less than typical, cognitive abilities but deficits in executive functioning, attentional control, and math skills are still likely. There may also be issues with mood lability, temper control, and increased levels of anxiety in some males with FXS. It has been found that many males with FXS experience a developmental decline in IQ as they age, although the reason for this is not yet known [8].

Females with FXS are also affected by cognitive impairments with deficits observed in, focusing and maintaining attention, organizational tasks, and a tendency to also have difficulties with math. Females are more commonly affected, than males with FXS, by impulsive behavior, mood lability, avoidant personality disorder, and anxiety disorders [2]. Excessive shyness and social anxiety are also common among girls with FXS and in very severe cases can lead to selective mutism in specific settings. The severity of cognitive impairments, as with most features of FXS, varies greatly among individuals. It is typically seen that females with FXS tend to have a less severe presentation of associated characteristics than males because of the potential for more *FMRP* production.

Strengths for both genders are often seen in the entering and processing of simultaneous information in addition to retrieving information from long-term memory, particularly verbal memory. Those with FXS have also displayed an increased ability to understand the difference between their own personal representations of the world, as compared to that of others [7].

Behavioral Phenotype

Behavioral characteristics that are prevalent in those with FXS include difficulty with social interaction, sensory hypersensitivities, and extreme sensitivity to changes in their environment. This also includes poor eye contact, shyness, and social anxiety particularly in new or unfamiliar environments [11]. Individuals with FXS may have hypersensitivities to visual, auditory, tactile, and olfactory stimuli. Loud noises, obvious or distinct smells and some textures of fabric or food are frequently aversive to those with FXS. Hyper-arousal of the senses may lead to violent outbursts, tantrums, and either self-injurious behavior or outward aggression. Children with FXS are prone to hyperarousal and tend to struggle with even simple transitions, potentially leading to violent behavior [11].

Attention deficit hyperactivity disorder (ADHD) and associated symptoms (e.g., varying degrees of inhibition/impulsivity, hyperactivity, and sustained, divided or selective attention) account for much of the problematic behaviors observed in those with FXS [12]. When compared to other children diagnosed with developmental disabilities (matched for intellectual functioning), a higher prevalence of ADHD has been found in those

with FXS. Research has also found a higher incidence of ADHD in boys with FXS (73%) as compared to girls with FXS (35%); however, it appears that a percentage of older males with FXS outgrow their hyperactivity [11].

FXS also has a high comorbidity with autism. Approximately 30% of males with FXS have a dual diagnosis of autism and FXS. Conversely, approximately 6% of those diagnosed with autism will also possess the FXS *FMR1* gene mutation [9]. Those presenting with a dual diagnosis have more severe cognitive, adaptive, receptive and expressive language deficits [9]. Certain behavioral characteristics of autism (e.g., hand flapping, hand biting and toe-walking) are more common among those with FXS as are certain speech characteristics (e.g., perseveration of a particular activity or topic of speech, echolalia, cluttered speech, mumbling, and self-talk) [11].

Language

Prelinguistic gestures and vocalizations are commonly used well past the usual age (i.e., toddlerhood) at times extending into adolescence or adulthood [1]. Language delays may be more severe in males, although research with females in this area is minimal. Those with a dual diagnosis of autism and FXS show greater language delays with limited receptive and expressive vocabulary skills. For those who do not have a comorbid diagnosis of autism, research has demonstrated that receptive and expressive vocabularies can be strengths [7]. The high frequency of difficult behaviors and psychopathology, such as excessive hyperactivity, greatly impact the acquisition of language and subsequent use.

Treatment

Treatment and appropriate interventions, for the physical and behavioral problems associated with FXS, are currently the best available methods for alleviating the effects of the disorder. An optimal treatment plan involves a multiprofessional approach of physicians, occupational therapists, speech therapists, physical therapists, psychologists, and the involvement of those closest to the person such as family members and teachers. These professionals can provide support to the individual through an individualized treatment plan addressing academic and behavioral issues, motor and language delays, and pharmacotherapy for the psychopathologies and epilepsy associated with FXS [9].

Intervention methods can be very effective for addressing both the emotional and behavioral problems associated with FXS. Treatment may include individual and family psychotherapy, behavioral therapy, group therapy, social skills training programs, and pharmacotherapy [9]. Pharmacotherapy can be used to treat the wide range of attentional, behavioral and neurological issues seen in individuals with FXS. ADHD symptoms, such as attentional deficits and impulsivity, can be treated with stimulant medication (e.g., dextroamphetamine (Dexedrin; Adderall), methylphenidate (Ritalin)) [9]. For some individuals, stimulants may exacerbate problem behaviors in which case medications such as anti-hypertensive drugs (e.g., clonidine or guanfacine) may be prescribed. Antidepressants, such as selective serotonin reuptake inhibitors (SSRIs) (e.g., fluoxetine (Prozac), paroxetine (Paxil)), can be used to treat various problems related to anxiety, compulsive and perseverative behaviors along with mood symptoms and depression. SSRIs are also used to treat the social anxiety and withdrawal symptoms found in many females and high-functioning males with FXS [5]. Atypical antipsychotics (e.g., risperidone (Risperdal)) are also used to treat mood disorders and aggression in those with FXS.

Anticonvulsants (e.g., carbamazepine, valproic acid, lamotrigine, gabapentin, and topiramate) are commonly used to treat epilepsy and have also been shown to be effective in decreasing some of the behavioral problems observed in those with FXS and treating mood disorders in individuals with FXS [5, 9]. Sleep disturbances, including problems with sleep regulation, is a common feature of FXS, particularly in young children for which melatonin use at bedtime is often used [5].

Recent research has been focused towards addressing the cognitive impairments and neurological basis of FXS (i.e., mGluR overactivity). Preliminary research has evaluated the effects lithium, an inhibitor of mGluR pathways, has on behavioral and cognitive traits of those with FXS. Results indicate positive benefits; however, clinical trials are necessary to determine the reliability and validity of these results [6].

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Frame of Mind

►Mood

Fraternal Twins

►Dizygotic (DZ) Twins

Fraudulence

►Dishonesty

Frequency

►Standard Celeration Charting

Frequency Curve

►Normal Curve

Freud, Anna

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Life Dates

1895–1982

Introduction

Anna Freud is the daughter of Dr. Sigmund Freud and is considered to be the keeper of her father's legacy [1, 12–14]. She is a pioneer in the development of child psychoanalysis and child developmental psychology. Ms. Freud is known for her theoretical, technical, and scientific contributions to psychoanalysis, child and ego psychology, as well as her initiatives with children in poverty and those in the legal system. Ms. Freud was prolific, with over 200 articles, most of which can be found in *The Writings of Anna Freud* [6], and her book, *The Ego and its Defense Mechanisms* [5], is one of the most widely read psychoanalytic works to this day.

Educational Information

Ms. Freud, originally an elementary school teacher, completed her training as a psychoanalyst in 1920 [14]. She never had formal college training, nor a medical degree, but at that time no formal training programs existed and none would be developed until 1926. She later received many honorary degrees including Doctor of Laws, M.D., and Ph.D.

Accomplishments

Anna Freud was involved in psychoanalytic training, establishing charitable nurseries, and improving legal decisions involving children. Ms. Freud was a training analyst and later the director of the Vienna Psychoanalytic Training Institute, where she was instrumental in training many analysts, including Erik Erikson [14]. In 1947, Ms. Freud and Kate Friedlander founded the Hampstead Child Therapy Training course and later the Hampstead Child Therapy Clinic, subsequently renamed

the Anna Freud Centre, a charitable institution that provided free services.

Anna Freud and Edith Jackson established the Jackson nursery in 1937, one of the first nurseries to provide care for underprivileged children under the age of 2. During World War II, Ms. Freud and Dorothy Burlingham founded the Hampstead Wartime Nurseries, which served over 190 children who had been evacuated due to the war. She received the first Dolly Madison Award at the White House for Outstanding Service to Children.

Ms. Freud taught courses at Yale Law School on family and crime in the early 1960s. Here, she partnered with Joseph Goldstein, Dorothy Burlingham, and Albert Solnit and published *Beyond the Best Interests of the Child*, *Before the Best Interests of the Child*, and *In the Best Interests of the Child* [9–11]. The authors stressed the importance of continuity in children's relationships, argued for how to best construe "the best interests of the child," and helped to define situations in which intervention is needed. *Beyond the Best Interests of the Child*, in particular, had a profound impact on the legal system [11].

Anna Freud was involved in many professional affiliations and had numerous appointments. Ms. Freud presented her first paper, "Beating Fantasies and Daydreams" for admittance into the Vienna Psychoanalytic Society in May 1922 [2]. Ms. Freud held the position of Secretary from 1931 to 1933, at which time she became co-Vice-President. She also was General Secretary of the International Psychoanalytic Association in 1927 and continued in that position until 1934, when she became Vice-President. Following her emigration to London in 1938, she became affiliated with the British Psychoanalytic Society and was elected Secretary in 1944. Ms. Freud was one of the founding editors of *The Psychoanalytic Study of the Child*, and editor of *Journal of Psychoanalytic Education* and *Psychoanalytic Quarterly* [14].

Contributions

Anna Freud was one of a small group of analysts interested in using psychoanalysis with children. In 1927, Ms. Freud established the use of psychoanalysis with children in *Introduction to the Technique of Child Analysis,* based on lectures from her child analysis courses [1, 3]. Ms. Freud viewed children's difficulties as being transient and normal, and urged a conservative use of psychoanalysis with children. Nonetheless, she advocated for a psychoanalytically informed environment for children. Her work emphasized the developmental and technical differences in working with children, as opposed to adults, an uncommon perspective at the time. She recommended the use of play techniques for children, since she viewed techniques used in adult psychoanalysis to be inappropriate. Ms. Freud asserted that not all children's play actions have symbolic significance, and should not be thought of as equivalent to free association in adults. Ms. Freud also argued that transference differs in children, in that children do not develop a complete transference neurosis. Despite some important developmental differences, she argued that a separate theory of child psychoanalysis was unnecessary; that psychoanalytic insights applied equally to children.

Ms. Freud effectively argued for the importance of the ego, in comparison to instincts and drives, in *The Ego and the Mechanisms of Defense,* making the ego a worthwhile therapeutic enterprise [5, 12]. Ms. Freud mapped out the ego's functioning and offered a comprehensive account of psychological defenses. Sigmund Freud had introduced the concept of defense mechanisms; however, it was largely unexplained and he had not expanded the concept since 1900. Ms. Freud added new defense mechanisms to the classic list of defense mechanisms, including sublimation or the transformation of unwanted impulses into something less harmful, altruistic surrender, and identification with the aggressor.

Based on their observations from Hampstead, Anna Freud and Dorothy Burlingham published *Young Children in Wartime: A Year's Work in a Residential Nursery* and *Infants Without Families: The Case for and Against Residential Nurseries* [7, 8]. These works concluded that emotional development was most hindered in institutional life due to separation from caregivers, and consequently a family-like atmosphere was created in the residential nursery. Children were assigned to surrogate families, with one nurse assigned to four or five children. Parent involvement was encouraged as much as possible. Mothers could work as housekeepers so that they could nurse their babies, siblings were not separated, and there were no restrictions placed on visitation. The Hampstead Nurseries provided valuable information about the effects of wartime on children, which led to changes in the treatment of children separated from their parents. For example, English hospital polices were amended to allow parents to stay with their children during long hospital stays.

Ms. Freud was involved in the development of the Hampstead Index, an observational classification system used to record children's feeding, sleeping, bodily development, intellectual development, and formation of relationships [2]. The use of the Hampstead Index lead to detailed developmental charts and histories for each child, and was one of the first to utilize systematic reliable observation of children.

At Hampstead, Ms. Freud and colleagues also created the Developmental Profile, a diagnostic instrument used

to assess normality and abnormality [1]. The Profile includes numerous aspects of psychological functioning, as well as achievements and regressions, in a number of areas of development, such as body independence (independent feeding, bladder and bowel control) and play (from egocentricity to companionship). Prior to this Profile, diagnosis was given little attention in psychoanalysis [2]. The use of the Profile led to more precise diagnoses and conceptualizations for treatment. It also was used to test the effectiveness of analysis, by comparing pre- and post-treatment profiles to each other.

In her last major theoretical statement, *Normality and Pathology in Childhood*, Ms. Freud gives a comprehensive account of her views on abnormal and normal development, including her theory of "developmental lines." [4, 13] Developmental lines are linear progressions in various aspects of development that can be observed in children. The sequence of social relations, for example, runs from the total dependency observed in infants to the ability to form mature relationships in adulthood. Psychopathology is thought to occur when an individual fails to progress in one aspect of development or when there is unevenness along the "lines." Through this theory, Ms. Freud was able to connect normal and abnormal developmental processes [2].

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Friends

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Synonyms

Buddies; Chums; Companions; Pals

Definition

Friends are individuals who have a close, personal relationship with one another that is characterized by mutual positive feelings.

Description

Assessment of Friendship

Friendship dyads are typically identified using sociometric techniques. Specifically, researchers use some combination of positive nominations, in which children are asked to select their best friends or the classmates they like the most, and peer ratings, in which children are asked to rate how much they like to play with or participate in activities with their classmates. Identification of friends has most frequently been based on mutual positive nominations (i.e., each dyad member nominates the other as a best friend). However, some researchers have classified individuals as friends if they display mutual positive regard for one another through either positive nominations or high ratings. It has been found that operationalizing friendship based on mutual positive nominations is more restrictive, since this technique results in fewer friendships being identified than techniques involving the use of ratings [5]. It is possible that defining friendship based on mutual positive nominations identifies friendship dyads that are qualitatively distinct from the friendships that are identified using more lenient criteria. This proposition is relevant to the question of whether friendship is a categorical or continuous construct [8]. Whereas the categorical view implies that friendship is a distinct relationship, a continuous view implies that there are varying levels of relationships that are labeled as "friendships" (for example, best friends, good friends, acquaintances). The degree to which individuals say they like one another may reflect the level of friendship that exists. It should be noted that some researchers simply ask individuals who their friends are and assume a friendship exists despite the fact that there is no information available regarding whether the identified partner actually has positive feelings for the person.

Nature of Interactions with Friends

Individuals tend to choose as their friends those who are similar to themselves in demographic, behavioral, and personality characteristics. For example, friends are typically similar in variables such as age, race, level of aggression, attitudes toward school, and substance use patterns. It is thought that similarity in features initially attracts individuals to one another and provides validation for one's characteristics. Friends then mutually influence one another in ways that make them even more alike as their relationship develops [3].

There are many ways in which individuals' interactions with friends differ from their interactions with peers who are not friends. For example, there is a greater level of positive engagement with friends than nonfriends, including a higher intensity and frequency of talking, smiling, laughing, sharing, cooperating, and helping. Interactions with friends feature less intense competition and domination than interactions with nonfriends, and there is more emphasis on equality. Interestingly, although the frequency of conflict between friends versus nonfriends does not differ, disagreements between friends are more apt to be resolved using negotiation rather than strategies involving power assertion and standing firm. Consequently, conflict resolution strategies used by friends are more apt to lead to equitable outcomes that help to preserve the friendship [10].

Although friendships are characterized by mutual positive feelings, there is variability in the quality of specific friendships. Compared to those who are poorly accepted by the peer group, children who are well liked tend to enjoy higher quality friendships that involve greater trust and loyalty, more equitable conflict resolution, and greater validation and intimacy [11]. It is also important to consider the identity of an individual's friends, given that whether a child's friends are prosocial or antisocial likely makes a difference in the child's overall adjustment [8]. Indeed, the friendships of antisocial adolescent males have been found to be of relatively low quality and short duration, and are apt to end acrimoniously [2].

Children begin forming friendships during the preschool years, and they tend to identify those with whom they play frequently as their friends. Although young children are likely to describe their friends primarily in terms of their role as playmate, it has been observed that intimacy also characterizes young children's friendships. For example, young children confide in one another about their worries and fears, and friends know more about the likes and dislikes of their friends versus nonfriends. By middle childhood, children begin to emphasize the loyalty aspect of friendship relations. During adolescence, there is a strong focus on intimacy as an important facet of friendship [6].

Throughout the childhood years, children tend to choose same-gender peers as their friends. This seems to result from boys and girls each having distinctive play styles (e.g., boys more focused on rough-and-tumble play) and differing interests in particular toys and activities. However, by early adolescence, cross-sex friendships begin to occur with greater frequency as individuals experience increasing interest in the other sex. Although boys' and girls' friendships are similar in many respects, such as companionship and conflict, it has been found that boys tend to have larger, less intimate friendship networks, whereas girls have smaller, more intimate friendship networks [4]. By late elementary school, female-female friendships are characterized by greater levels of emotional intimacy than are male-male friendships, a pattern that continues throughout the lifespan. In early adolescence, cross-sex friendships tend to be fairly low in intimacy, but by late adolescence female-male friendships show higher levels of intimacy, similar to the levels observed in female-female friendships. It has been suggested that this increase in intimacy in cross-sex friendships may provide a training ground, particularly for males, for heterosexual romantic relationships [12]. Interestingly, the size of adolescents' same-sex friendship network is predictive of the size of their other-sex friendship network. In turn, the number of other-sex friends is associated with the likelihood of adolescents having a romantic relationship, both concurrently and in subsequent years [1].

Relevance to Childhood Development

Friendships serve many important functions in childhood and beyond [7]. Within the friendship context, children typically experience affection and love. Moreover, friendships tend to be characterized by intimacy, as friends share their feelings and personal aspects of themselves. Having a friend to confide in may promote feelings of trust, acceptance, and a sense of being understood. Friends may also be a valuable source of nurturance by providing comfort, solace, and support to one another. Giving such aid may promote feelings of competence, enhance self-esteem, and create a sense of being needed. Furthermore, friends provide instrumental aide as well as a sense of reliable alliance by being loyal to one another and willing to share resources. Finally, friends are frequent sources of companionship, stimulation, and fun. Interacting with a friend affirms one's

competence and value and can enhance one's feelings of self-worth.

Given that interactions with friends provide affection, emotional support, validation, and a sense of belonging, it is not surprising that research has revealed that children and adolescents who have poor friendship experiences are at risk for psychosocial difficulties. Those who do not have a friend or who are involved in a low quality friendship are more vulnerable to feelings of loneliness and depression. Poor friendship experiences are also related to lower self-esteem, higher social anxiety, greater risk for peer victimization, and more difficulties in making school transitions [9]. Because of the critical role that positive friendship experiences play in childhood, there is clearly a need to design interventions that are focused on improving the social skills of children who are having difficulties with friendships.

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Friendship

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Synonyms

Ally; Best friends; Chums; Cohort; Companions; Pals; Peers; Playmates

Definition

A close relationship entered in voluntary and is marked by emotional attachment, reciprocity, and mutuality.

Description

Being liked by classmates is very different from having friends. Close friends provide children with (1) accepting contexts for children to learn and expand basic social skills; (2) knowledge about others and the self not available from other sources (family, siblings, etc.); (3) emotional support in times of need; and (4) a foundation of relationship expectations that set the stage for future relationships (romantic, parental, etc.). Just being liked by others does not necessary insure children will receive the benefits of close friendships. Although no central definition of friendship exists, researchers can agree on several key aspects that separate friendships from other types of relationships. Friendships are reciprocal in which both members must affirm participation in the relationship. Also, friends are tied by emotional bond rather than instrumental bonds (both playing the same sport or having same classes). Finally, friendships, unlike other relationships, are voluntary. Children willingly enter into the friendship and willingly maintain and dissolve the relationship.

Friends play an important role in every stage of development. Toddlers show a clear preference for their choice of playmates and those preferences seem to remain stable over an entire year. Then, in preschool, friendships become more common and more clearly defined. The number of friends children report having increases steadily from preschool, across middle childhood, and into adolescence. The stability of friendships also increases with development with over ¾ of older children naming the same individuals as friends over the course of one school year. Also, across childhood and adolescence, friends are more similar than nonfriends in age, gender, ethnicity, and socioeconomic status, as well as behavioral and emotional traits like shyness, achievement and antisocial behaviors.

Like other areas of social development, children's friendships progress from a playmate to reciprocal partners exchanging personal information. In preschool, children report friends as someone to play with and with whom to share certain activities. Typically, preschool friends are based on a matter of convenience (living next door, going to the same preschool, children of parents' friends) rather than on true selection from a variety of sources. Young children also expect their friends to behave in a manner consistent with their own behavior and developmental struggles.

However, when children enter elementary school, the selection of available friends expands. Children are able now to choose friends based on shared values and attitudes. Because of the selectivity of friendships in middle childhood, friends can stress the importance of mutually liking each other's company. Children also understand the differential power distribution between parent-child relationships and friendships. Therefore, in middle childhood, children conceptualize friendships as relationships that transcend shared activities and time. Children are able to distinguish between supportive, high-quality friendships and one-sided friendships.

From the reciprocal foundation built in middle childhood, adolescents can expand their friendships to include disclosing intimate and personal information, sharing problems and expecting help with psychological problems. Friendships in adolescence provide the basis for future romantic relationships by allowing members to become emotionally tied to non-related people.

Studying children's friendships is of great importance to researchers because having friends is important to children, making friendships impact on development even stronger. In fact, not having close friendships leads to elevated levels of loneliness, depression, anxiety, and loss of self-esteem. Specifically children without friends are more likely to have emotional problems, to be less altruistic, to have deficiencies in social skills, to show poorer school adjustment, and to make fewer educational gains. Several caveats to the link between friendlessness and developmental issues must be addressed. First, being friendless may be just a temporary state thus decreasing the lasting emotional effects. Second, not all children who are friendless will experience the same developmental issues. Some children seem to not need friends to develop appropriately. Last, no true cause-and-effect link has been determined. Not having friends could be due to poor social skills or having poor social skills could lead to not having friends. Causation may actually be more of a circular cycle for children, which once started can spiral out of control leading to loneliness.

Friendships serve different purposes and vary by contextual factors, such as gender. Specifically, girls' friendships tend to be more intimate, and show more validation and emotional sharing than boys' friendships. However, girls' friendships, especially best friendships, tend to be less stable and more vulnerable to dissolution than those of boys. Friendships between males show less exchange of personal information and are based on shared physical activities. In addition, boys' friendships are more integrated into the larger social network, whereas girls' friendships are more isolated from the larger group again making them more vulnerable to dissolution than boys' friendships. Interestingly, when boys and girls are friends, intimacy is higher than when two boys are friends. Again, this supports the notion of friendships serving different purposes and having different contexts.

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Fromm, Erich

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Life Dates

1900–1980

Educational Information

Born in Frankfurt, Germany on March 23, 1900, Erich Fromm was a psychoanalyst and social philosopher whose ideas significantly influenced a broad audience, in addition to psychologists and psychiatrists, in the middle of the twentieth century. He was deeply interested in the emotional lives of the individual and of groups and how both related to community and to culture.

Fromm was born into a bourgeois, Jewish background, which he described as "neurotic," but he rejected religion in his mid-twenties [1]. He received his Ph.D. at the

University of Heidelberg in 1922, then went on to train in psychoanalysis at the University of Munich in 1923–1924 and the Berlin Psychoanalytic Institute in 1925. Fromm was deeply influenced by the events leading up to and resulting from of World War I and by the theories of Karl Marx. Although trained as a Freudian psychoanalyst, Fromm would eventually part with Freud and many of his followers because of his beliefs about the influence of culture and social circumstances on personality [1, 6, 7].

Accomplishments

Fromm visited as a guest lecturer in 1933 at the Chicago Psychoanalytic Institute, then left Nazi Germany and immigrated to the United States in 1934. He was never welcome in the orthodox community because of his socialist views and was actively ostracized in 1941 when he published *Escape from Freedom*, which met with critical success in other intellectual communities but not in his own. He went on to write a number of books, including *The Forgotten Language* (1951) about the function of dreams, *The Art of Loving* (1956), and *The Anatomy of Human Destructiveness* (1957) [2–5].

Originally aligned with Karen Horney and the American Institute of Psychoanalysis, Fromm eventually split in 1945 from this group because of controversy about his training as a "lay analyst," i.e., his non-medical doctorate degree in psychology. This was the beginning of a long, politically driven controversy that was not resolved until 1988 after a lawsuit against the American Psychoanalytic Association was won allowing lay analysts to practice psychoanalysis in the United States [1, 6, 7].

Fromm joined Harry Stack Sullivan and Clara Thompson at what is now the William Alanson White Institute for Psychiatry, Psychology, and Psychoanalysis in New York in 1945 and was influential in establishing the interpersonal school of psychoanalysis. He subsequently taught at many different institutions including Columbia University , the New School and New York University in New York, Bennington College in Vermont, Yale University in New Haven, ant the National University of Mexico. He helped found the National Committee for a Sane Nuclear Policy (SANE) [1].

Contributions

Fromm published extensively about many topics, including the importance of social and cultural influence on the development of individuals and groups. He also foresaw difficulties that would eventually develop in the world about energy, famine, and nuclear war. In the theoretical realm Fromm believed in the importance of instinctual drives but rejected Freud's structural model of Id, Ego, and Superego. Instead he emphasized the need for others, transcendence, identity, and frames of orientation. He was somewhat more optimistic than Freud in his beliefs about the "productive frame of orientation" but was also cautionary in his warning about nonproductive frames that include receptive (overly dependent on external gratification and love,) hoarding, exploitative, marketing, and bureaucratic orientations [1, 7, 8].

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Frontal Cortex

►Frontal Lobes

Frontal Lesion

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Synonyms

Brain damage; Brain injury; Frontal lobe dysfunction; Frontal lobe injury

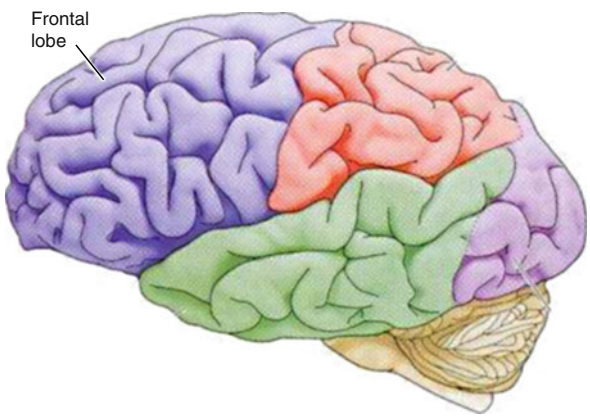
Definition

A lesion, from the Latin word *laesio* meaning injury, is any abnormal tissue or injury. The frontal lobes are part of the cerebral cortex of the brain. Frontal lesions are damage to the frontal lobe region that is usually caused by disease or trauma.

Description

The frontal lobe region of the human brain (see Fig. 1) is the largest lobe and the region accounts for approximately a third of the total human brain surface. There are considerable functional and anatomical divisions within the frontal lobe. Three primary functional regions on the lateral surface are recognized: the motor region, premotor region, and prefrontal region. The prefrontal region can be subdivided into three topographically segregated groups: the dorsolateral prefrontal cortex, orbitofrontal cortex, and paralimbic regions. The limbic/paralimbic region is a forth-functional region that is located deep in the medial portion of the lobe [4].

The cortical surface of the frontal lobe evolves prenatally and then continues throughout the forth decade. The frontal lobe plays a central role in human cognition and is involved in motor behavior, expressive language, concentration and attention, reasoning and thinking, orientation in time, place and person. Frontal lobe functioning, therefore, contributes significantly to the overall psychological and behavioral functioning of an individual [4]. The multidimensional nature of the frontal lobe serves to coordinate and organize brain functioning. This in turn serves the purpose of assisting individuals with goal-directed and self-regulatory behavior, including planning, flexibility and impulse control. The frontal lobes serve a vital role in social behavior, personality and emotion regulation [4]. Importantly, the frontal lobe provides a regulatory function, which effects the integration of multimodality information and the utilization of intellectual resources. Executive function is a cognitive construct adopted as a general description of the types of behavior that reflect frontal lobe activity. Executive functions may be defined as "the ability to maintain an appropriate problem-solving set for attainment of a future goal" [6]. Of central importance is the ability to plan future actions, maintain these in mind until implemented and inhibit other actions. Given the wide range of behaviors that are associated with the frontal lobes, it is not unusual to expect that individuals with frontal lesions exhibit a varied range of functional deficits.



Frontal Lesion. Fig. 1 Frontal lobe.

Frontal lesions are associated with psychiatric (functional) and neurological (organic) disorders. Damage to the frontal lobes can be very disabling for everyday life and dramatic behavioral changes are the hallmark of human frontal lobe dysfunction.

In individuals with frontal lobe lesions, the cognitive abilities may continue to operate and "work" but the individual has difficulty ensuring they can constrain the skills to the task at hand [3]. Being able to control many aspects of behavior is often contingent on working memory. For example, an individual may need to manipulate temporarily held representations to formulate plans or they may need to update task goals when another task must also be performed. Frontal lesions that result in working memory deficits likely cause a wide range of problems in the control of attention and in planning and switching between tasks [2]. Frontal lesions can also result in an individual displaying abnormal behaviors linked to the reduced recognition of affective state in others, as well as associated difficulties with other emotional information and emotion regulation. Likewise, the lack of impulse control can result in the expression of inappropriate behaviors.

Relevance to Childhood Development

Eslinger et al. [1] found that most but not all children who suffered early frontal lesions involving the prefrontal cortex showed chronic and profound impairments that limited their ability to participate fully in school/employment and maintain successful social relationships. Specific deficits involved the application of social knowledge and sustaining friendships, planning and impulse control, learning from experience, and the relative lack of anxiety, fear or empathy. The finding that a wide range of behaviors were associated with frontal lesions emphasized the convergent nature of the function of the frontal lobes. In addition, Eslinger et al. [1] concluded that an early lesion within the frontal lobe is not only a localized event but also the consequences then have an experiential effect on the maturation of other interacting areas of the brain.

Frontal lobe dysfunction has been implicated in many childhood disorders. Deficits in executive function, for example, have been found to be typical of developmental

disorders in general [5] and several studies have examined the contribution of executive function deficits to attention-deficit hyperactivity disorder (ADHD [5]), learning disabilities [7] and conduct disorders [5]. Difficulty in maintaining attention is one of the hallmarks of selective frontal lesions. Developmental disorders of attention, such as ADHD are most notably relevant to childhood development. ADHD is a common referral for psychiatric treatment in children. The disorder is characterized by difficulties sustaining attention, organizing tasks, being easily distracted and forgetful, difficulty waiting a turn, and difficulty inhibiting a response. As discussed, many of these behaviors are associated with frontal lobe lesions in adults.

There is converging evidence that frontal lesions in the dorsolateral prefrontal cortex (DLPFC) are implicated in schizophrenia. The onset of schizophrenia typically occurs in the postpubertal period just after performance on DLPFC-dependant tasks typically reaches full adult potential. The pruning of specific DLPFC neuron connections that occurs during adolescence may confer a selective vulnerability to symptom onset after maturity [4]. In addition, traumatic brain injury (TBI) frequently involves the frontal lobe. Severe closed head injuries, for example, preferentially involve the orbitofrontal areas because the movement of the brain on impact is restricted by the bony skull. Pediatric TBI results in substantial difficulties for survivors well beyond the acute phase of the injury [3].

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Frontal Lobe Dysfunction

▶Frontal Lesion

Frontal Lobe Injury

▶Frontal Lesion

Frontal Lobes

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Synonyms

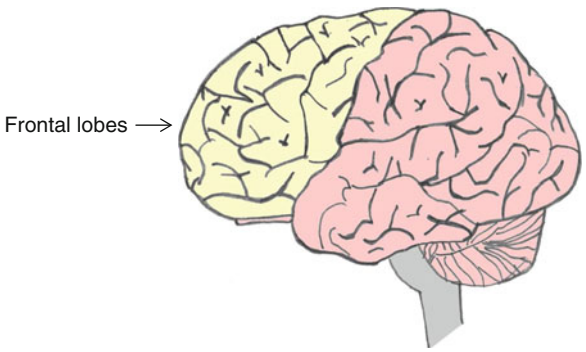
Frontal cortex

Definition

The brain is divided into a left and right hemisphere. Each hemisphere is subdivided into four lobes, frontal parietal, occipital and temporal. Each of the four lobes is thought to have specialist roles for aspects of functioning.

Description

The frontal lobe is the largest part of the cortex. Anatomically, the frontal lobes extend from the central gyrus to the anterior limit of the brain [5] see yellow area in Fig. 1. The frontal lobes include the primary motor, supplementary motor and premotor cortex (involved in planning of



Frontal Lobes. Fig. 1 The frontal lobes in relation to the remainder of the brain.

execution of movement), Brocas area (involved in the production of speech) and the prefrontal lobes (involved in executive functions, social behavior and motivational states [5].

Premotor and Motor Cortex

The Primary motor cortex is principally involved with movement and motor control; it has extensive connections with the premotor cortex. Damage to the primary motor cortex causes loss of fine motor movements [6]. The Premotor area is principally involved with somatosensory information i.e., information about touch. The Supplementary motor cortex is involved in preparation for rapid series of movements i.e., typing. Both the Premotor and Supplementary motor cortex are involved in the planning of movement [5].

Brocas Area

Broca's area is located on the inferior frontal gyrus of the frontal lobes. Damage to Broca's area results in difficulties producing speech, however, the person is still able to understand speech.

Prefrontal cortex: The most anterior portion of the frontal lobes is called the prefrontal cortex. The prefrontal cortex is the only part of the brain that receives input from all sensory modalities. The prefrontal cortex is split into the dorsolateral, orbitofronal and the anterior cingulate each area is associated with specific functions outline below [3]:

A. Dorsolateral prefrontal circuit: The integrity of this circuit is associated with the effective performance of executive functions, the ability to integrate cognitive and perceptual processes across time and space and update goals in the face of new information. Executive functions include working memory, decision making, flexibility, set maintenance, self monitoring and control of ongoing behavior [9–11].
B. The Orbitofrontal circuit mediates socially appropriate behaviors. Personality changes are most commonly seen after disruption of this circuit and may include irritability and changes in mood [7]. Patients with lesions in this area may behave inappropriately in social situations, often failing to respond to environmental and social cues [3, 7].
C. The Anterior cingulate: This circuit is involved in motivated behavior [12]. Patients with lesions in the structures of the anterior cingulate are reported to be apathetic with impaired motivation along with poor response inhibition and may show a reduction in creative thought [3].

Lesions to different areas of the prefrontal cortex can result in a range of deficits depending on the site of the lesion prefrontal (see Table 1 below).

Frontal Lobes. Table 1 Cognitive and behavioral problems associated with dysfunction in the three frontal-sub-cortical circuits (Table adapted from Chow and Cummings [3]).

Circuit	Dysfunction	Impairments
Dorsolateral prefrontal circuit	Executive functions	Poor organizational strategies
		Poor memory search strategies
		Stimulus bound behavior/Environmental dependency
		Impaired set shifting and maintenance
		Poor working memory
Anterior cingulate circuit	Socially appropriate behavior	Personality change
		Emotional incontinence
		Impulsivity
		Irritability
		Mood disorders
Lateral orbitofrontal circuit	Motivated behavior	Apathy
		Poverty of spontaneous speech
		Poor response inhibition
		Reduced creative thought
		Akinetic mutism

Connections with Subcortical Structures

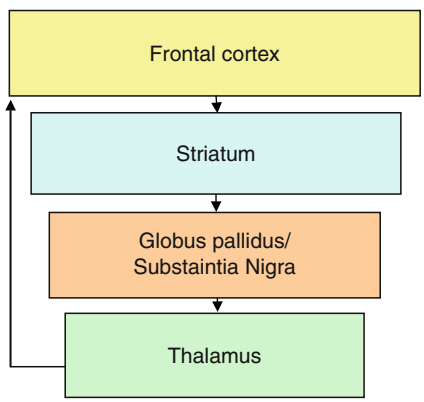
The frontal lobes are also connected with subcortical structures including the basal ganglia and the thalamus (see Fig. 2). The relationship between the frontal lobes and the subcortical structures has been most clearly outline by Alexander, DeLong and Strick [1, 2]. These researchers introduced the concept that the structures of the frontal lobe were involved in five parallel but segregated frontal subcortical pathways. The five frontal subcorticle structures are each named according to their site of origin in the frontal lobes, (1) the motor circuit, (2) the ocular motor circuit (originating in the frontal eye fields), (3) dorsolateral circuit, (4) the Orbital frontal circuit and the (5) Anterior cingulated. The latter three originate in the prefrontal cortex and are dedicated to executive functions.

Each of the five circuit is proposed as having a preeminent, if not exclusive, role in the performance of different functions and all share the same features having direct and indirect pathways, with each loop being segregated, and arising from and projecting to the same area of the cortex (see Fig. 2 for diagrammatic representation of the closed circuit for each pathway only the direct circuit is shown). A large body of research supports the role of these circuits in cognitive and behavioral functioning (for review see Owen [8]). Also, lesions to the cortical areas and at other points of the circuits have been reported as having similar effects. For example, people with Parkinson's disease exhibit many of the deficits associated with dysfunction of the basal thalamo-cortical loops.

Significance to Child Development

Synaptic density in the frontal cortex changes over the life span. Huttenlocher (1979) observed that density increases in the first year of life to well above that of adults and then declines over the next 16 years. There is little change between 16 and 70 years. After 70 years of age the synaptic density declines [4]. This change in synaptic density has been associated with many of the developmental changes seen during childhood and adolescents, particularly the development of emotional and inhibitory control. Some researchers have pointed to the development of the frontal lobe as being directly related to changes such as development of executive functions and theory of mind [11]. Further, disorders such as Attention Deficit Hyperactivity Disorder have also been associated with frontal lobe development, specifically the prefrontal cortex [11].

Given the role of the frontal lobes in development it is important to realize that damage to this area of the brain may have a significant effect on the child's ability to function.



Frontal Lobes. Fig. 2 Diagrammatic representation of the general structure of the frontal sub cortical circuits adapted from Tekin and Cummings [12].

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Full Inclusion

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Synonyms
Inclusive education; Mainstreaming

Definition
Educating a child with a disability in a general education classroom for all educational services.

Description
One of the mandates of the Individuals with Disabilities Education Act is educating children with disabilities in the "least restrictive environment." This stipulates a continuum of services ranging from hospitalization to home-based education to resource room to partial inclusion to full inclusion. A student in full inclusion has a disability and spends all school hours with same-age, typically developing students in the general education classroom. A special educator often consults with a student's general education teacher to assess the needs of the student and provide supports allowing the student to benefit from instruction.

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Full Scale IQ

►Intelligence Quotient

Functional Analysis

►Behavior Assessment

Functional Assessment

►Behavior Assessment

Functional Behavior Analysis

►Radical Behaviorism

Functional Behavioral Assessment

Synonyms
FBA

Definition
Provides a consideration of specific behaviors and behavioral patterns set within an environmental context. It has been defined as "an analysis of the contingencies responsible for behavioral problems" [1, p. 433].

Description
FBA can be conducted with students who have an identified disability and who exhibit problem behaviors, which interfere with their learning and the learning of others in the classroom. The purpose of conducting an FBA is to determine the problem behavior and to identify the factors that predict and maintain the behavior. Such factors include (a) antecedents: events or situations that consistently preceded the behavior, and (b) consequences, events and conditions that result from problem behaviors. The steps in the FBA include the following: Identifying and operationally defining the target behaviors, collecting data, such as frequency, rate, intensity, and latency of the behaviors, identifying the events that precede and follow the target behavior (antecedent-behavior-consequence or ABC analysis), developing a "hypothesis" about the function of the target behavior and developing an intervention plan [2].

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Functional Imaging

►Brain Imaging
►Positron Emission Tomography

Functional Magnetic Resonance Imaging

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Synonyms

Brain mapping MRI; Brain MRI

Definition

Functional magnetic resonance imaging (fMRI) is a cutting edge type of magnetic resonance imaging (MRI) that measures blood flow and oxygenation in the brain to map brain functioning.

Description

Making its first appearance in the early 1990s, functional magnetic resonance imaging (fMRI) is a procedure that detects the brain's response to neural activity by measuring blood flow and blood oxygenation produced by neurons in different locations of the brain. The emergence of fMRI has contributed greatly to research in neuropsychiatry, neuropsychology, and neuroscience. Currently, fMRI provides the best quality of activity images in the human brain; therefore, it is used extensively in experiments involving functional brain mapping. Some examples of psychological functions that can be measured in the brain with fMRI include: attention, cognition, language, sensation, perception, and emotion.

Relevance to Childhood Development

Functional MRI has gained much popularity among researchers in recent decades because it does not use ionizing radiation. This allows researchers to safely conduct multiple studies on single subjects – including child subjects.

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Functional Mutism

►Selective Mutism

Function-Based Diagnostic Classification Systems: Problem Behavior

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Introduction

A function based diagnostic classification system contrasts with traditional diagnostic classification systems for child behavior (e.g., DSM-IV-TR). Behaviors are classified as to their environmental function, rather than as a symptom of a syndrome of related behaviors. The characteristics of a function-based diagnostic classification system are the following [1, 2]:

- The diagnosis is of behavior problem characteristics, not child characteristics
- Prescriptive differential treatment is derived from a differential diagnosis
- Assessment data is collected to provide information on context variables, not just rate of behavior
- Assessment phase is concluded with diagnosis phase, in which a function-based category is selected

A unique function-based diagnostic classification system has been developed [1, 2] with major categories and subcategories. The four major diagnostic categories classify problem behaviors according to their environmental function. One parameter for this system examines the reinforcement operation currently maintaining the problem behavior (positive reinforcement operations or negative reinforcement operations). A second parameter examines the manner of access to such reinforcement (directly produced or socially mediated). Problem behaviors that serve a positive reinforcement function are termed access behaviors. Problem behaviors that serve a negative reinforcement function are termed escape behaviors (encumbers avoidance functions). Access can be either socially mediated or direct. Escape can also be either socially mediated or direct.

The following major categories constitute this classification system:

1. Direct access (DA)
2. Socially mediated access (SMA)
3. Direct escape (DE)
4. Socially mediated escape (SME)

Within each category, the following sub-categories are offered.

1. Direct access (DA)
   - DA-immediate sensory stimuli
   - DA-direct chain to tangible reinforcers
   - DA-other
2. Socially mediated access (SMA)
   - SMA-adult attention
   - SMA-peer attention
   - SMA-tangible reinforcers
   - SMA-other
3. Direct escape (DE)
   - DE-Unpleasant social situations
   - DE-relatively lengthy tasks/chores
   - DE-relatively difficult tasks/chores
   - DE aversive physical stimuli/events
   - DE-other
4. Socially mediated escape (SME)
   - SME-unpleasant social situations
   - SME-relatively lengthy tasks/chores
   - SME-relatively difficult tasks/chores
   - SME-aversive physical stimuli/event
   - SME-other

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FXS

►Fragile X Syndrome

G

GAD

▶Generalized Anxiety Disorder

GAF

▶Global Assessment of Functioning Scales

Galantamine

▶Razadyne®

Gammahydroxybutyrate (GHB)

▶Depressants

GAPD

▶Global Assessment of Functioning Scales

Gardner's Theory of Multiple Intelligences

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Synonyms

Bodily-kinesthetic intelligence; Eight intelligences; Interpersonal intelligence; Intrapersonal intelligence; Linguistic intelligence; Logical-mathematical intelligence; Musical intelligence; Naturalist intelligence; Spatial intelligence

Definition

According to Gardner's theory of multiple intelligences, there are eight different domain-specific intelligences. The eight intelligences are: Logical-mathematical, Linguistic, Musical, Spatial, Bodily-kinesthetic, Intrapersonal, Interpersonal, and Naturalist.

Description

Although the concepts of intelligence and intelligence testing have been reliable cornerstones of both applied and academic psychology for over a century, they have been equally reliable sources of controversy. Once such controversy is whether intelligence is best conceptualized as being a general mental ability (often referred to in the literature as *g*), or a set of mental abilities. The traditional psychometric perspective on intelligence leans heavily toward *g*, yet arguments in favor of multiple intelligences have been offered as an alternative. One of the most influential, and most frequently cited, of these theories is Howard Gardner's theory of multiple intelligences.

In his 1983 book *Frames of Mind*, Gardner (born in 1943) postulated that a multiple intelligence framework better describes human intellectual capacity than the traditional single intelligence as epitomized by such well-known intelligence tests as the Stanford-Binet and the Wechsler Intelligence Scale for Children (WISC) [2]. Using an impressive array of evidence, Gardner argued that humans simply do not display equal aptitude across domains and initially proposed a set of seven intelligences. These intelligences would constitute distinct and separate units with their own measurable and observable abilities. Each type of intelligence would be tailored to specific types of information, possess different developmental trajectories, and individuals would display competencies in these intelligences in different combinations. All intelligences are not only simply biologically based, but must be

Author's Note
This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

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nourished and developed by societies through valued disciplines. Gardner continued to develop and refine his theory through several publications and, in its most current form stemming from 1999s *Intelligence Reframed*, Gardner lists eight intelligences [3].

The eight intelligences are: Logical-mathematical, Linguistic, Musical, Spatial, Bodily-kinesthetic, Intrapersonal, Interpersonal, and Naturalist. Logical-mathematical and linguistic intelligences are the closest to intelligence as traditionally conceptualized. Musical intelligence is obviously linked to musical accomplishment, whereas spatial intelligence reflects accomplishment in the visual arts such as painting and sculpture and bodily-kinesthetic intelligence manifests itself in physical activity such as dance. Intrapersonal intelligence refers to self-awareness, and Gardner suggests that Sigmund Freud (1856–1939) is an exemplar of this specific type of intelligence. Interpersonal intelligence is related to leadership abilities and working with other people. Finally, naturalist intelligence is related to accomplishments in the study and appreciation of life itself; Gardner indicates that Charles Darwin is an exemplar of naturalist intelligence.

As with virtually every other aspect of intelligence as a topic of psychological inquiry, controversy exists regarding Gardner's theory of multiple intelligences. Recent critics such as Allix [1] and Waterhouse (2006a, b) note that while there are indeed many publications devoted to Gardner's theory, there are comparatively little scientific data to actually evaluate the theory. Morgan [7], while otherwise supportive, stresses the similarity of Gardner's multiple intelligences to earlier conceptualizations of cognitive styles. At the heart of the debate are the differences between Gardner and his critics regarding psychometrics and the experimental method in theory-testing. Gardner's critics take a traditional view of the worth of rigorous psychometric measurement as the core of intelligence research; Gardner is a critic of the standardized tests that result from psychometric development as well as the culture of testing that arose in response to intelligence tests. Gardner's critics regard controlled experimentation as the strongest evidence to be offered in the testing and development of theory; Gardner prefers a more holistic approach that stresses external validity. Given the diametrically opposed paradigms these two positions represent, resolution of the conflict appears unlikely.

Relevance to Childhood Development

As is fitting given Gardner's status as a professor at the Graduate School of Education at Harvard University, his theory of multiple intelligences is quite influential among educators. Multiple intelligence theory is a framework for courses and workshops intended for educational professionals teaching the full spectrum of children from the gifted to the developmentally challenged. Although more data is needed to evaluate the scientific merit of Gardner's multiple intelligences as a theory, his re-conceptualization of intelligence has provided a useful alternative paradigm in which educators may better assist student learning.

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Gaussian Distribution

▶Normal Curve

Gay

▶Homosexuality

Gaze following

▶Joint Attention

Gc

▶Crystallized Intelligence

GDS

►Gordon Diagnostic System

Gender Conformity

►Gender Roles

Gender Development

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Synonyms

Gender identity

Definition

The process of identifying one's subjective sense of identity as male or female [2], neither or both.

Description

On the most basic level, gender identity refers to individuals accepting themselves as male or female. The intersexed (intersexed/intersexuality) community includes a neither or both aspect due to the fact that there individuals are also born with characteristics pertaining to both males and females. Limiting the definition of gender identity to the categorization of solely male or female ignores individuals who do not identify as solely male or female.

Aside from the complicated process of biological sex development, or the development of internal and external genitalia is the social phenomenon of gender development or how individuals identify as male, female, neither, or both. Each child has their own unique development of gender and both biology and social learning play key roles.

Relevance to Childhood Development

In typical western society, children are exposed to gender differences as well as gender reinforcements from before they are even born. Once a mother finds out she is pregnant, it is inevitable that she will be asked if she is having a boy or a girl. Based on the dichotomous answer, friends, relatives and the like will often purchase gifts based on the identified biological sex of the baby. Pink items are given to girls and blue items to boys. Once the baby is born, the hospital often gives pink or blue blankets and identifying bracelets depending on the biological sex. From day one children are bombarded with proper girl toys and proper boy toys and respective colored clothing.

Some researchers believe infants have the ability to distinguish between male and female faces as young as 6 months of age [5]. However, it is not until 24 months of age that toddlers show gender specific activities including verbal differences [6]. Although, when infants and toddlers make gender distinctions, they are using superficial features such as hair length and are reported to not possess the ability to make more sound gender distinctions. This issue is referred to as a lack of gender constancy, or the understanding that being male or female is permanent and unable to change and by 3 years of age most children are still deficient with respect to this concept; however, [2] by age 6 aspects of gender constancy (i.e., gender consistency and gender stability) are evident.

As children develop they are bombarded with ►gender stereotypes and the pressures to adhere to traditional ►gender roles. Boys are not stereotypically encouraged to play with dolls; the majority of western society perceives dolls as girls' toys. Instead, boys are encouraged to play sports, play with trucks, dinosaurs, and similar toys and activities [3]. Girls are encouraged to look pretty, pretend to play house and cook, and take care of their dolls. However, if girls wish to cross the gender boundary and play with stereotypical boy toys or participate in boyish activities, they do not experience negative consequences on the same level that boys do when they choose to play with stereotypical girl toys or participate in girl activities. As children grow and develop and understand various aspects of gender, how to appropriately label different genders and what stereotypically accounts for appropriate gender roles, they begin to adopt what they feel is appropriate behavior with respect to gender. Children often evaluate their own gender as "better" and are more knowledgeable of the stereotypical appropriate behaviors associated with their own gender [4]. In general it is agreed that with increase in age comes an increase in gender flexibility, or the idea that children will make exceptions to gender stereotypes as they grow older and become more comfortable with their own gender identity and what gender identity means. However, research on this topic varies in methodology and how to measure gender flexibility thus giving exceptions to this reported linear relationship [2].

By the time children enter middle childhood and adolescence, their concept of gender identity is more

concrete and they have a more sound idea of what constitutes stereotypical gender roles. Additionally, they have a more concrete understanding of their own identity and what it means to identify as male, female, neither, or both. Occasionally, children and adolescents will have an understanding that their biological sex (that is being born with a penis or vagina) does not match their gender identity (or identifying as male, female, neither, or both). Exhibiting four of the five following symptoms can result in a diagnosis of Gender Identity Disorder [1]: (1) cross-sex behaviors, (2) cross-sex toy and activity preferences, (3) cross-sex peer affiliation, (4) cross-dressing, (5) a stated desire to be the other sex. Each child will come to terms with their gender identity in their own way and understanding. A desire to be the gender that does not match their biological sex can result in many difficult situations for the individual as well as their family; however, there are many resources available to the transgender community to foster a healthy transition for the individual and offer support and education for their family.

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Gender Identity

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Synonyms

Gender development; Gender identity disorder; Gender roles; Gender variance; Sexual identity; Transgender; Transsexual

Definition

Gender identity pertains to the degree to which an individual espouses either a male or female sexual identity; it is reflective of the degree to which individuals "feel" or conceptualize their psychological and sexual identity as male or female. Most often, gender identity matches biological sex. In cases where ones' gender identity does not match assigned sex, diagnosis of gender identity disorder (GID) may be explored.

Description

Gender identity pertains to the degree to which an individual espouses either a male or female sexual identity; it is reflective of the degree to which individuals "feel" or conceptualize their psychological and sexual identity as male or female. Most often, gender identity matches biological sex. Specifically, most biological males espouse a male gender identity, and most biological females espouse a female gender identity. However, biological sex assignment alone is not predictive of gender identity in all cases, leading to situations in which ones' gender identity differs from their sex assignment. Gender typical behavior, including dress, mannerisms, and sexual attraction, are some of many factors that comprise gender identity. Stereotypical gender role fulfillment is also viewed by some to reflect gender identity, but is not in and of itself a strong predictor of either gender identity or sexual orientation.

Espousal of gender roles that significantly deviate from ones' biological sex, combined with reports on the part of an individual that they want to be (or feel like) a member of the opposite sex, are early indicators of mismatch between sex and gender identity, and are suggestive of GID.

Gender Identity Disorder (GID) or Gender Dysphoria

Dissonance between biological sex and gender identity may be reported in early childhood, adolescence, or adulthood. According to the APA [1], diagnosis of GID may occur when four or more of the following criteria are met:

1. Repeatedly stated desire to be, or insistence that he or she is, a member of the opposite sex.
2. In boys, a preference for cross-dressing or simulating women's attire; in girls, insistence on wearing only stereotypically masculine clothing.
3. Strong and persistent preferences for cross-sex roles in make believe play or persistent fantasies of the opposite sex.
4. Intense desire to participate in the stereotypical games and pastimes of the other sex.
5. Strong preference for playmates of the other sex (p. 581).

Additionally, "persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex" must be manifested, must not be attributed to a physical intersex condition wherein the individual possesses both male and female genitalia, and must result in significant psychosocial impairment (p. 581).

Often, male children with disturbances in gender identity overtly reject their genitalia and express a desire to no longer have a penis; some will indicate a desire to have a vagina. Avoidance of or disinterest in stereotypical male pursuits, such as rough play, engaging in games or playing with toys most often associated with boys, or engaging in play with male playmates, is common. Open interest in stereotypical female interests, including dolls, female play mates, and wearing female clothing is frequently observed. Female children may demonstrate aversion to their genitalia by standing to urinate, suggesting that they may "grow a penis" or someday have a penis, or indicating that they do not want breasts or to menstruate. Active avoidance of feminine clothing and pursuits is also often noted, along with a preference for male dress, haircuts, playmates, and stereotypical male play activities ([1], p. 581). In adolescents and adults, individuals with GID often take active steps to live as a member of the opposite sex for some or part of the time. Many express desire to engage in hormone treatment or surgery in hopes of attaining their desired physical form, and may often indicate belief that they were "born the wrong sex" ([1], p. 581). Individuals with GID may be referred to as transgender or transsexual. The term male-to-female (MTF) is used to denote a male individual who is transgender and is living their life as a female. Female-to-male (FTM) is used to indicate a female who is living their life as a male.

Holistically, children, adolescents, and adults with GID are plagued by social and emotional discomfort resulting from the lack of congruence between their actual and desired sex. In addition to experiencing social isolation stemming from gender related differences and stigma, individuals with GID are prone to depression, anxiety, and suicide or suicide attempt [6]. Many individuals with GID do not actively pursue gender reassignment surgery, hormone therapy (testosterone or estrogen), or the use of implants, but rather choose to live their life as a member of their assigned sex. Some individuals with GID elect to live their "private" lives as the opposite sex, while their "public" gender identity matches their biological sex. The degree to which and individual actively pursues a lifestyle as the opposite sex varies considerably from person to person.

Prevalence of Gender Identity Disorder

Due the lack of comprehensive national data collection systems assessing gender identity in the United States, data regarding prevalence in the US is unavailable. As per Sohn, Hartmut, and Bosinski [5], several researchers have identified prevalence rates in Europe due to the availability of broader, national data collection systems. In the Netherlands, the number of MTF transsexuals is approximately one per 119,000 individuals, with the number of FTM transsexuals approximately one per 11,900 individuals; in Belgium, the number of MTF's is approximately 1 per 12,900, with one per 33,800 persons (p. 1,195). Similar prevalence rates appear to be common across Europe. MTF transsexuals typically outnumber FTM transsexuals by three to one.

Etiology of Gender Identity Disorder

The precise cause of disruptions in gender identity is unknown. Current theory regarding GID highlights the possibility of genetic as well as hormonal underpinnings, with relatively limited and non definitive literature supporting either of the aforementioned.

At present, twin studies have yielded the finding that GID appears to be heritable, with estimates of heritability ranging from 50 to 62% [2, 3]. However, despite the fact that genetic identity disruptions are likely heritable, to date, no research has identified how differences in gender identity are genetically coded [4]. Hormonal hypotheses suggest that prenatal hormone exposure influences the development of sex-typed behavior. However, aside from illuminating potential differences in the development of the hypothalamus as a result of hormone bathing, no definitive hormonal cause has been found.

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Gender Identity Disorder

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Synonyms

Gender identity; Transgenderism; Transsexualism

Definition

Gender Identity Disorder (GID) is the diagnosis for persistent discomfort with the gender role of one's birth-assigned sex, concurrent with a strong identification as the opposite gender.

Description

GID is the formal classification identified in the Diagnostic and Statistical Manual of Mental Disorders IV-Text Revision (DSM-IV-TR [1]) for an experience of both extreme identification with one's opposite gender, and a lack of association or comfort with the gender role of with one's birth-assigned sex. Formal assessment of the diagnosis includes a ruling out of a physical intersex experience, and the establishment of a significant level of stress in interpersonal relationships and social interactions as a result of one's gender. A diagnosis of GID by a qualified mental health professional is recommended by the World Professional Association of Transgender Health (WPATH) Standards of Care [8] for determining candidacy and readiness for a medical referral to begin hormone replacement therapy (HRT); while two mental health evaluation of GID are recommended for referrals of transgenders who seek sexual reassignment surgery (SRS).

The prevalence of GID has been estimated by identifying the number of transgenders who seek SRS, which the WPATH Standards of Care have identified as ranging from 1 in 37,000 males and 1 in 107,000 females in an early estimation, to 1 in 11,900 males and 1 in 30,400 females in a more recent estimate. A major challenge in establishing a more precise estimate exists in that the high cost of surgeries, individuals' pre-existing medical conditions, and limited esthetically satisfactory medical options (particularly of female-to-male genital surgery) do not make surgery an option for transgenders who would otherwise meet the diagnostic criteria of GID.

The GID diagnosis has been a subject of some controversy, as many transgender activists and allies have identified it as pathologizing, citing that it is based upon a biased system of diagnosis that posits a binary model of gender [2, 3, 5, 7, 12, 13]. The argument also centers on the role of mental health professionals in assessing candidacy and readiness for hormones surgery, when many transgenders identify that the choice to migrate their bodies in concordance with gender identity should be their own [10]. Additionally, seeking mental health services for the purpose of procuring an assessment of GID is seen as artificial and counter-intuitive to a therapeutic environment of honesty, as many transgenders have identified that they tell therapists what they believe the therapists wish to hear in order to write favorable assessment letters [10].

The identification of gender as a continuum [4, 11] or spectrum [9], rather than a binary model of male and female as discrete and opposite experiences, is gaining attention within the medical and mental health community, as more helping professionals and gender researchers encounter transgender clients who do not meet the full diagnostic criteria of GID, but who identify themselves as existing between the genders. Self-identifiers such as *gender queer*, *genderless*, *bi-gendered*, and *third-gendered* have emerged along with third gender pronouns ("ze" or "sie" – rather than "he" or "she") to identify a range of experiences to that reflect a range of gender possibilities [6]. Cross-cultural examples of third gender experiences include the *hijra* of India, the *kathoey* of Thailand, and numerous examples of two-spirit tradition in Hopi, Navajo, and other Native American cultures (sometimes mistakenly referred to by non-Native researchers using the perjorative *berdache*). The Bugi ethnic group of the Indonesian island of Sulawesi acknowledges five genders that are seen as a foundation for social harmony.

Relevance to Childhood Development

Many adult transgenders report having experienced the features of GID from earliest memory. Such reports include knowledge that one was "different," a desire to play with the toys or games more typically assigned to the other gender, and a desire to dress in the clothes or assume the appearance of the other gender. Clinically, children are referred as young as ages 2–4 [1] for mental health services, generally when gender nonconforming behaviors are a cause of concern for caregivers. Although some of these children do grow-up to identify as transgender and/or to present the features of GID, relatively few pre-school age children who demonstrate cross-gender propensities will continue these behaviors into adulthood. Generally, the malleability of behavior is

relative to a child's age. Although relatively few children who meet the diagnostic criteria of GID will become transsexuals as adults (meaning that they actively pursue hormones and sexual reassignment), many will identify as lesbian or gay in adulthood ([1]; WPATH, 2001).

GID can be a source of tremendous distress for children, with a great deal of stress often precipitated by interactions with parents, siblings, and other children who are antagonistic of the child's expression of her or his gender. Social mistreatment is often cited in teen suicide letters, and is identified as a major cause of Major Depression for transgender adolescents. Referral to a mental health professional who is knowledgeable of transgender experiences and who will be supportive of the child is advisable.

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Gender Roles

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Synonyms

Gender conformity; Gender identity; Gender socialization

Definition

The behaviors, expectations, and values defined by society as masculine and feminine [4].

Description

Gender roles are defined differently within specific societies and cultures as each society sends messages to its members about culturally appropriate behaviors, norms, and values for men and women, based on gender. Each society or culture has its own concept of gender, which can be defined as the social construct that associates behavioral, cultural, or psychological traits as male or female. Gender is usually determined by one's biological sex (or whether one has male or female reproductive organs). However, it is possible for an individual to accept gender roles that are opposite of their birth sex.

Gender roles are often determined based on traditional stereotypes (e.g., women cook and clean, while men go to work or fix cars). Gender roles may also influence one's career choice (e.g., women are often discouraged from entering sciences or medicine, while men are discouraged from traditionally feminine careers like nursing or secretarial work). Gender roles may also be expressed through clothing or styles of dress (e.g., men wear suits and ties to formal occasions, while women wear dresses to formal occasions). In contemporary times, women may wear pants and dress shirts like men, but these articles of clothing are often feminized and/or fitted differently. Gender roles may be expressed in behavior (e.g., men express their emotions through anger or yelling, while women express their emotions through crying). Gender roles may be expressed in relationships (e.g., men have close friendships with other men where they do not discuss intimate, personal problems, while women have close friendships with other women where they discuss emotions and intimate, personal problems regularly). Gender roles may even influence personality traits that are more desirable for men or women; for example, men are

more desired to act as leaders or be aggressive, while women are more desired to be affectionate or cheerful [1].

Gender role socialization (Gender socialization, Gender conformity, Gender identity) is the process in which an individual learns and accepts roles as a male or a female. There are many ways that individuals are socialized to learn about gender roles, even from a very early age. In many Western societies, baby boys are usually dressed in blue and male toddlers are given toys like trucks and cars; baby girls are usually dressed in pink and female toddlers are given toys like baby dolls and play cooking sets. In adolescence, boys and girls receive messages about how they are supposed to behave. Adolescent girls are encouraged to be emotionally expressive, while adolescent boys are encouraged to be more controlling of their emotions [8]. And in adulthood, men may be socialized to believe that they must be providers or breadwinners of the family, while women may be socialized to believe that they must be motherly and submissive to men.

Gender role socialization may influence one's personality development. Previous literature has supported that men may be more achievement-oriented than women and that men may have a greater internal locus of control than women, but that women may possess more empathy than men [3]. Gender roles may influence achievement-orientation in that men are socialized to be more practical and unemotional; accordingly, they may view a problem or stressor as something to be overcome. Gender role expectations may impact locus of control and worldview; women may learn that stereotyping and discrimination may limit their opportunities and negatively impact their lives. Accordingly, men may perceive that they have more power in determining their present and future lives, while women may perceive that there will be other external forces that may determine their present and future lives. Gender role norms may encourage one's ability to be empathetic and emotionally-expressive. Women may be more able to relate personally and emotionally with others, and may cope by seeking social support, while men may learn that it is more acceptable to have emotional control and cope with problems individually.

Gender role socialization may also influence how individuals cope with stress and/or how mental health disparities occur for both men and women. Previous literature has supported that there is a higher prevalence of depression in adolescent girls, while there is a higher prevalence of substance use and antisocial behavior in adolescent boys [3]. Because women are taught to be emotionally expressive, there is a higher risk of depression. However, because men are not taught to be emotionally expressive of their feelings, it may be more acceptable to cope with their depression or stress by turning to substances and/or acting out in rebellious ways. Additionally, men are likely to be more aggressive, engage in violent behaviors, and/or have conduct problems than women [2].

Gender role expectations may lead to conflict and psychological distress for women. First, gender role expectations for women imply sexism, in that they objectify and demean women, while prevent them from the same opportunities for success or equality as men [6]. Additionally, previous literature purports that women are often in conflict about being societal norms of success for women, which is defined as a woman being "nurturing, physically attractive, and passive" [7]. Additionally, many women may be resistant to be identified as "feminists" because of the negative connotations that are attributed [7]. The manifestation of these gender roles on women may lead to several psychological problems, including a decrease in self-esteem, a decrease in comfort, and feelings of anger and depression [6].

Gender role expectations may also lead to conflict and psychological distress for men. Previous literature on gender role conflict has purported that there are six patterns that lead to mental health problems for men, including: restrictive emotionality, health care problems, obsession with achievement and success, restrictive sexual and affectionate behavior, socialized control, power, and competition issues, and homophobia [4]. Additionally, gender role conflict may manifest in several situational contexts including times when men experience a gender role transition or face difficult developmental tasks, when men deviate from or violate gender role norms of masculinity ideology, or when men try to meet or fail to meet gender role norms of masculinity ideology [5].

Gender roles may vary distinctly across cultures. For example, while women in Asian or Latin American countries are taught to be submissive to men, women in the Philippines are seen as the authoritative leaders and decision-makers of the family. Additionally, while doctors in the US are traditionally stereotyped to be mostly men, doctors in Russia, Taiwan, or Germany are predominantly women. Finally, while men in the US are discouraged from expressing physical affection towards other men, it is common and acceptable for men in Spain or France to hold hands or even kiss to express their friendship. Finally, the practice of androgyny (or the acceptance of both male and female behaviors and physical traits) is common practice in some cultures. For example, many Native American tribes have described their members as "two-spirited" or individuals who fulfill an array of mixed

gender roles (physically, socially, or functionally) in their everyday lives. Two-spirited people may serve as mothers, fathers, healers or medicine persons, pottery makers, fortune tellers, and many other gender-neutral roles.

Gender roles may also have different meanings for various subcultures. Lesbian, gay, and bisexual (LGB) individuals may find themselves balancing various gender roles in their personal, romantic, and family relationships. First, by virtue of identifying as non-heterosexual and behaving accordingly, LGB individuals are already breaking gender role expectations. Second, there may be a spectrum of gender role identities for LGB individuals. Some LGB individuals may maintain strict gender roles; these individuals be involved in same-sex attractions and relationships, but may still choose to behave in "masculine" or "feminine" ways within their romantic, personal, family, or work relationships. For example, a gay man may choose to be the masculine, dominant one in his same-sex relationship (socially and sexually), while a lesbian woman may choose to be the feminine, submissive one in the relationship (socially and sexually). Conversely, some LGB individuals may identify as androgynous or a mix of masculine and feminine gender roles. For example, some lesbian women may choose to dress in gender-neutral ways and desire others not knowing what their gender or biological sex is. Finally, some LGB individuals may enjoy rebelling against gender role norms. For example, some gay or bisexual men may enjoy wearing makeup or entering professions that are considered feminine, while some lesbian or bisexual women may enjoy playing or watching masculine sports or being dominant or aggressive in their sexual and romantic relationships.

Gender roles may also have different meanings for transgender individuals. Transgender persons, whom are diagnosed with Gender Identity Disorder (GID), are defined as individuals whose self-identification as a woman, man, or neither does not match their biological sex. Because transgender individuals may feel like they were born into the wrong gender, they may struggle in accepting prescribed gender roles from a very young age. For example, if a boy identifies as a girl, but his parents force him to wear boys' clothes, play with boys' toys, and play boys' sports, this may cause him significant psychological distress.

Relevance to Childhood Development

Gender roles are introduced in early childhood in both overt and covert ways. Gender roles may be communicated overtly (e.g., telling a boy that "Boys don't cry" or telling a girl "Young ladies don't play rough") or covertly (e.g., buying a boy masculine toys like guns or buying a girl feminine toys like dolls). Gender roles may be learned by children through modeling (e.g., watching how parents and adults interact with each other), through the media (e.g., viewing how men and women relate with each other on television), through religion (e.g., studying messages about gender from religious leaders or historical religious figures), and through school (e.g., understanding messages that one's teacher gives them about gender). When parents, families, and other sources send messages about gender roles to their children, these messages and may have lasting impacts on individual's personality development, worldviews, and self-esteem. Gender roles in childhood may also influence an individual's perception of socially acceptable ways of coping with problems, expressing their emotions, interacting in relationships, or choosing career paths.

Gender roles can be both positive and negative in a child's development. Some gender roles may be positive in that they may encourage affirmative personality traits in children. For example, little girls may learn the importance of being affectionate, compassionate, or sensitive to the needs of others, while little boys may learn the importance of being assertive, self-sufficient, or willing to take risks. However, while these gender role traits may be positive for the gender these traits are assigned to, they may negatively impact children of the other gender. For example, little girls may learn to be submissive, shy, or soft-spoken, while little boys may learn to be competitive, forceful, or dominant.

Finally, parents and families can minimize gender role conflict in individuals by preparing them for the psychological distress that may occur as a result of gender roles. For example, teaching young girls about sexism and discrimination or teaching young boys about the pressures and negative implications of masculinity may lead to better coping mechanisms and an increase in mental health.

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Gender Schema Theory

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Definition

Gender schema theory states that children actively construct mental representations about that which defines males and females by observing individuals in the culture in which they live. Such schemas are incorporated into the child's self concept, aid in the search and assimilation of subsequent information that the child deems schema-relevant, and are constantly changing as the child develops.

Description

First coined by Sandra Bem in 1981 [1], gender schema theory is a cognitive account of sex typing by which schemas are developed through the combination of social and cognitive learning processes. Through observations of individuals within a child's culture, the child is able to observe male and female typical attributes, activities, and actions. These observations which aid in gender segregation and guide the child's gender related actions and activities are incorporated into the child's evolving gender schema.

The developing child begins to label him or herself as either male or female by about age 2 [6], but it is not until about age 7 that the child gains gender constancy [5] and recognizes that his or her sex is unchanging. However, even at age 2, the child is actively developing his or her schemas and incorporating them into his or her sense of self. He/She is constantly evaluating objects and activities as "boy" or "girl" things and forming his/her own schema, thereby integrating those aspects of self-definition that are appropriate for one's own gender. Further, gender schematic cognitions are not only influenced by the child observing others, but are also reinforced by toys, clothing, occupations, and hobbies including sports.

Relevance to Childhood Development

The lens through which children see the world as explained by gender schema theory is used to account for sex-related behavioral differences in boys and girls. Once a child develops his/her schemas regarding proper behaviors for men and women, these schemata guide all subsequent cognitions including information processing, behavior, and memory to specific activities [1]. By assimilating these schemas into their cognitions, children develop self-concepts that include the concepts of gender and gender-specific roles. Such development of self-concept is demonstrated by those gender-schematic children behaving in more gender-typical ways than gender-aschematic children. For these children, gender-consistent information is more easily understood and remembered, while information that contradicts or doesn't fit within the constructs of the schemas are difficult to process and are often not as easily remembered [3]. Gender schematic individuals are also more likely to be able to quickly indicate the gender appropriateness of behaviors and activities and are more readily able to recall gender specific terms and information in free recall tasks [4]. Given these findings, it is hypothesized that the attempted behaviors and associated cognitions of a child are not random, but rather determined by the child to match his/her hypothesized ▶gender identity as determined through his/her schemas.

It has been hypothesized by Sandra Bem that the ideal developing child schema would not be strongly male or female gender typical; with an optimal child having both male and female associations [2]. Such ideals are believed to be possible if the parents partake in behaviors that are cross-sexed. Possible behaviors including taking turns making dinner, both parents taking part in sex-typical hobbies such as watching and playing sports, and making sure that their children have access to both male and female typical colored clothing and toys.

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Gender Socialization

►Gender Roles

Gender Variance

►Gender Identity

Gene–Environment Interaction

►Diathesis-stress Model

General Cognitive Aptitude Testing

►Intelligence Testing

General Intelligence

The concept of general intelligence began more than 100 years ago with Charles Spearman's (1904) seminal work *General Intelligence, Objectively Determined and Measured.* Spearman proposed that all mental tests are comprised of a factor specific to each test and a general factor of intelligence, noted by *g*. One of the first tests to formally measure general ability was the Wechsler-Bellevue Scales (Wechsler, 1939) which included subtests that differed in their content but were all designed to measure general ability. All of Wechsler's tests that have been published have included an overall total score called a Full Scale score which represents general ability based on 10 to 12 individual subtests which varied in content. The content of the IQ tests developed in the early part of the 1900s included subtests, like the Army Mental Tests, which varied along the now familiar verbal, nonverbal (performance), and quantitative dimensions. Despite the varying content, all tests were intended to measure general ability. For example, some of the tests require knowledge of words and comprehension of verbal relationships; others, memory of the sequence of numbers; and others, reasoning with arithmetic and spatial stimuli. But as Wechsler (1975) wrote "… the attributes and factors of intelligence, like the elementary particles in physics, have at once collective and individual properties (p. 138)." Therefore, despite the individual demands of specific subtests, they form a cohesive whole which is general ability. Wechsler continued writing "the subtests are different measures of intelligence, not measures of different kinds of intelligence (p. 64)". More recently, Naglieri (2003) reminded us that "the term nonverbal refers to the content of the test, not a type of ability (p. 2)." Thus, tests may differ in their content or specific demands (what Spearman [1927] referred to as "indifference of the indicator" [p. 197]) but still measure the concept of general intelligence.

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General System Theory

►Systems Theory

Generalization

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Definition

Generalization is "the occurrence of relevant behavior under different, nontraining conditions (i.e., across subjects,

settings, people, behaviors, and/or time) without the scheduling of the same events in those conditions as had been scheduled in the training conditions" ([2], p. 350).

Description

The concept of generalization is particularly important in child behavior and development when changes in behavior across settings, people, or time, for example, are desired. Historically, generalization was thought to occur passively and naturally, as practitioners adopted the "train and hope" philosophy of generalization [2], whereby they acknowledged the potential for generalization to occur but did not facilitate its occurrence. However, generalization does not appear to occur naturally, so attention has recently been turned to programming for it [1–4].

The seminal piece by Stokes and Baer [2] first called attention to the fact that generalization is rarely a passive process. By systematically reviewing the generalization literature to date, Stokes and Baer [2] developed a classification system of generalization techniques used in research studies. Stokes and Baer's contribution was important not only because it provided a thorough review of the existing generalization literature at the time and facilitated the conceptualization of generalization as an active process, but also because it provided a framework for researchers who sought to bring about lasting and widespread behavioral change in their clients/patients/participants.

Later, Stokes and Osnes [3] modified the classification system by grouping programming tactics within three general principles. That is, Stokes and Osnes reorganized, and elaborated upon, the techniques first presented by Stokes and Baer [2], with the goal of presenting a clearer picture of how to program for generalization. Within the categorization developed by Stokes and Osnes [3], twelve programming tactics fell under the general principles of (1) exploit current functional contingencies, (2) train diversely, and (3) incorporate functional mediators.

The first principle (exploit current functional contingencies) refers to the direct exploitation of the antecedent-response-consequence pathway that can influence the frequency, intensity, and/or duration a given behavior. The programming tactics under this general principle include (1) contact natural consequences, (2) recruit natural consequences, (3) modify maladaptive consequences, and (4) reinforce occurrences of generalization. Contacting natural consequences involves identifying and making use of positive consequences that naturally occur in the environment, rather than employing artificial consequences or consequences that have been programmed by the therapist or change agent. For example, a natural positive consequence for engagement behaviors of a child who is socially withdrawn may be positive peer attention. When natural consequences are not readily identifiable or accessible, it may become necessary to recruit natural consequences – the second tactic within this principle. For example, a student can recruit the natural consequence of teacher praise by directly asking the teacher how he/she performed on an academic or behavioral task (e.g., asking the teacher "How did I do?" after successfully turning an assignment in on time). The third programming tactic of modifying maladaptive consequences is used when existing consequences are working toward maintaining an inappropriate behavior. In these cases, the maladaptive consequences must be changed in order to decrease the frequency, intensity, or duration of the inappropriate behavior. For example, if the consequence for a student's out-of-seat behavior (avoidance behavior) is to send the student out of the classroom, it is likely that this consequence needs to be changed to encourage the student to stay actively engaged in classwork. Finally, Stokes and Osnes [3] proffered that current functional contingencies may be exploited by the reinforcement of generalization occurrences. Specifically, generalization behaviors should be noted and reinforced, such as when a student who has been taught to engage in prosocial behaviors in the lunchroom also engages in these behaviors on the playground.

The second principle (train diversely) involves the institution of less control and rigidity during training conditions. In particular, training diversely encourages change agents to broaden training goals and procedures with the ultimate goal of promoting widespread outcomes. The programming tactics under this general principle include (1) use sufficient stimulus exemplars, (2) use sufficient response exemplars, (3) make antecedents less discriminable, and (4) make consequences less discriminable. A stimulus exemplar is an aspect of training that is associated with the training condition (e.g., a change agent or the therapy room). By using sufficient stimulus exemplars (e.g., multiple change agents or several different therapy rooms), generalization can be enhanced. The literature suggests that as few as two stimulus exemplars may be sufficient. In contrast, a response exemplar can be understood as the behavior that is sought during training. An example of using sufficient response exemplars could be training students to solve a problem in many different ways. Another way generalization can be achieved with this tactic is by training subsets of behaviors that are representative of a particular class of responses. The final two tactics of this principle address discrimination

by indicating that (to enhance generalization) antecedents and consequences must be made less discriminable. In terms of antecedents, the conditions of training should vary and be flexible enough so that target behaviors are not associated only with a specific set of circumstances. For example, training could occur in natural settings at unplanned times. With regard to consequences, schedules of reinforcement should be varied, and reinforcement should be delayed when feasible.

The final principle (incorporate functional mediators) involves the use of mediators to enhance generalization. In this context, "a mediator is a stimulus that occurs between the training and the occurrence of generalization in such a way that it facilitates or mediates that generalization, probably as a discriminative stimulus for the performance of the behavior" ([3], p. 348). A mediating stimulus, then, is a stimulus that is either present in multiple conditions or a stimulus that the client can easily transport between the training condition and other settings. The programming tactics under this general principle include (1) incorporate common salient physical stimuli, (2) incorporate common salient social stimuli, (3) incorporate salient self-mediated physical stimuli, and (4) incorporate salient self-mediated verbal and overt stimuli. Essentially, the principle remains the same, while the types of stimuli differ. In particular, a physical stimulus is a physical object (e.g., a timer); a social stimulus is a person (e.g., a peer, therapist, teacher) or a characteristic of a person (e.g., a gesture someone makes); a self-mediated physical stimulus is something the client can maintain and carry with him/her between training and non-training conditions (e.g., a notebook with procedures or a self-monitoring chart); and self-mediated verbal and overt stimuli are verbalizations, thoughts, and or cognitive strategies used by the client in relevant settings.

Using the techniques put forth by Stokes and Baer [2] and Stokes and Osnes [3], Osnes and Lieblein [4] recently examined the current state of generalization programming by reviewing generalization articles in select journals (*Journal of Applied Behavior Analysis*, *Behavior Modification*, the *Journal of Positive Behavior Interventions*, and *The Behavior Analyst Today*) from 1999 to 2002. In general, they sought to determine whether the field of generalization has moved beyond "train and hope" and found mixed results. Whereas they found researchers are assessing maintenance and incorporating the techniques identified by Stokes and Baer [2] and Stokes and Osnes [3], they also found that researchers are continuing to use interventions that are highly discriminable without long-lasting effects.

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Generalized Anxiety Disorder

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Synonyms

Anxiety disorders; GAD; Over-anxious disorder

Definition

Generalized anxiety disorder (GAD) is an anxiety disorder that is characterized by excessive worry, more days than not, for at least 6 months. This worry can cause significant distress in both social and academic functioning.

Description

Diagnosis and Classification

Children diagnosed with GAD must experience excessive anxiety and worry occurring more days than not for at least 6 months. These children find it very difficult to control their anxious thoughts and which results in distress at school, home, and other areas of functioning. This worry is observed in restlessness, fatigue, irritability, muscle tension, difficulty concentrating, or sleep disturbances.

Prior to the fourth edition of the Diagnostic Statistical Manual of Mental Disorders, GAD was referred to as Over-Anxious Disorder (OAD).

Core Symptoms

The continuous anxiety and worry characterized by GAD can occur in a variety of areas, including academics, natural disasters, sports, past behavior, or future events. Some children also worry about characteristically adult issues, such as the financial situations of their parents, relationships, punctuality, or perfectionism. When these issues begin to interfere with social adjustment and academic functioning, the anxiety becomes a cause for clinical concern.

The expression of GAD can change developmentally in both the content and the severity of the disorder. Children over the age of 12 years report more GAD symptoms and present with anxiety towards more events.

The worries experienced by children diagnosed with GAD persist despite the fact that the event is unlikely to occur. This can be partly attributed to the fact that these children overestimate the likelihood that a negative event will occur. These children also underestimate their ability to cope with these negative events and tend to catastrophize minor events.

Children with GAD tend to make more negative statements about themselves and require constant reassurance from others. As a result, they tend to present with a negative self-concept.

Physical Complaints

Children diagnosed with GAD are likely to complain about gastrointestinal problems, which include muscle tension, nausea, diarrhea, and stomachaches. Other common physical symptoms include, but are not limited to, sweating, headaches, dry mouth, teeth grinding, and trembling. Due to all these physical complaints, most children with GAD tend to seek out consultation of a physician or an internist [1].

Prevalence

GAD is one of the most common anxiety disorders in children. It is estimated that approximately 2–4% of children in the general population meet the diagnostic criteria for the diagnosis.

Sociodemographic Variables

Data regarding the sociodemographic variables of children diagnosed with GAD are limited. Nevertheless, much of the research from the previous diagnosis of OAD can utilize. Children diagnosed with OAD are typically from middle-to-upper class families. Females are more frequently diagnosed with GAD.

Etiology

The cause of GAD is unknown. However, early twin studies suggest that every anxiety disorder, with the exception of GAD, demonstrated a high monozygotic concordance. Since this study, more researchers have argued that there is a possible genetic contribution in patients with GAD. The genes are responsible for creating a general vulnerability and risk factor for these disorders [4].

GAD has also been associated with a lower metabolic rate in white matter and basal ganglia with brain-imaging studies. Likewise, there have also been some abnormalities with sleep electroencephalogram (EEG). These studies have illustrated that those diagnosed with GAD tend to have decreased delta sleep, decreased stage 1 sleep, reduced rapid eye movement sleep, and difficulty staying asleep [4].

Comorbid Problems

GAD is frequently comorbid with other anxiety disorders and affective disorders. Children diagnosed with GAD are also at increased risk for alcohol use as a form of self-medication [2].

Developmental Course and Prognosis

The developmental course of GAD is unknown due to the high comorbidity rate associated with the disorder. The few studies in the literature are retrospective in nature with adults reporting the onset of symptomatology in childhood [3].

Relevance to Childhood Development

Considering the extensiveness of the disorder, children diagnosed with GAD are likely to have problems developing and maintaining close relationships, as well as completing everyday activities [3].

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Generation

▶Birth Cohort

Generational Effects

▶Age-Graded Influences: Cohort

Generativity versus Stagnation (Erikson's Middle Age)

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Definition

Generativity is psychologist Erik H. Erikson's term for the primary developmental task of the seventh stage of the life cycle – caring for and contributing to the life of the next generation. The developmental challenge of adults in their middle years is to be procreative, productive, and creative and to overcome a pervading mood of self-absorption or personal stagnation. Generativity includes any activity that contributes to the development of others and to the life of the generations. The successful realization of generativity gives rise to the ego strength that Erikson described as the virtue of care.

Description

Erik H. Erikson viewed generativity as the principal task of middle adulthood and used the term to highlight the adult's role "in establishing and guiding the next generation" ([3], p. 267). Erikson summed up the stages in the following way: "In youth you find out what you *care to do* and who you *care to be* – even in changing roles. In young adulthood you learn whom you *care to be* with – at work and in private life, not only exchanging intimacies, but sharing intimacy. In adulthood, however, you learn to know what and whom you can *take care of*" (p. 124). Stage 7 of the life cycle marks the time a person takes their place in society and helps to take care of the next generation. Adults' societal generativity can be in the form of creating and caring for ideas, art, children, and products. Erikson notes that those who do not have children sometimes fulfill their parental responsibility by performing other altruistic and care-related activities. For example, one can help someone else's child and still exercise generativity. Therefore, this stage does not center on having children; it centers on extending one's self to make the world a better place for the next generation [7]. Due to the nature of this stage, relationships center on the workplace, the community, and the family – places where one can both creatively contribute to and care for what has been created. Regardless of the setting, the psychosocial challenge to adults is to promote the development of others, from nurturing the growth of another person to shepherding the development of a broader community.

If adults do not master this developmental task, however, they tend to become self-absorbed and stagnant. Erikson's concept of stagnation, that is, most directly applies to the failure to become socially generative. The absence of generative care threatens the entire future of the society because generativity is "the link between the life cycle and the generational cycle" ([5], p. 258). Without generativity, inactivity and meaninglessness predominate; adults embrace "pseudo intimacy" while feeling "stagnation and interpersonal impoverishment" ([2], p. 103). They focus inward, indulging their own needs instead of the needs of others. In some sense, they become their own child. An extension of self-absorption is the act of "rejectivity" or rejecting specified groups of people. Erikson elaborated on this term by noting the correlation between rejectivity and what he calls "pseudospeciation," which he defined as the distorted belief that another group not only differs from you but also poses a threat to you ([4], p. 69). For the mature, generative adult, care extends to all, not just to certain groups of people.

The virtue of care arises from the favorable resolution of generativity *versus* stagnation. Erikson notes that "care" includes "'to care to do' something, to 'care for' somebody or something, to 'take care of' that which needs protection and attention, and 'to take care not to' do something destructive" ([6], p. 53). An "ethic of care," as expanded by Snarey [13], "is an ethical position that first considers the possible effects on the next generation. Care is an inclusive concern for what love, necessity, and chance have generated. Generative care overcomes the ambivalence associated with irreversible obligations by being inclusively attentive to all that has been created" (p. 228). Giving instead of receiving generates personal contentment. Erikson [1] posits that mature humans "need to be needed, and maturity needs guidance as well as encouragement from what has been produced and must be taken care of" (pp. 266–267). In the process of caring for others, the adult also experiences further growth and personal development. In other words, just as children cannot develop into healthy adults without committed parenting, adults cannot achieve healthy maturity and generativity without the experience of nurturing future generations [7].

Research on adult development has built on or advanced Erikson's concept of generativity. Valliant and Milofsky [14] interpreted the findings of their longitudinal study of working and upper-class men as indicating that two separate developmental tasks (career consolidation *versus* self-absorption; keepers of meaning *versus* rigidity) can be understood as derive from Erikson's concept of generativity. Deemphasizing the significance of crisis, they also suggested a spiral model by which each new

stage balanced off the prior stage in a pendulum swing between "times of change and instability" and a "preoccupation with the preservation of sameness and autonomy and with following and maintaining rules" (p. 1350). A spiral model suggests the evolving, hierarchal nature of maturation and the difficulties of development without mastery of each stage. This study also illumines the role of culture in modifying the tasks of development; cultural differences influence what society deems as suitable developmental tasks for each stage ([14], pp. 1348–1351).

Erikson's concept of generativity also was elaborated in the lives of men by studying the role of fatherhood. Kotre's theorizing [8] and Snarey's [12] research centered on *generative fathering*, which describes men "who contribute to and renew the ongoing cycle of the generations through the *care* they provide as birth fathers (biological generativity), childrearing fathers (parental generativity), and cultural fathers (societal generativity)" (12, p. 1). Additionally, Snarey [12] developed the concept of "generativity chill" to describe the threats to adult generativity, and his four-decade study demonstrated that brief or long-term threats to generativity have considerable impact on a father's selfhood, bringing the father to confront his own mortality and challenging his own generativity with stagnation.

McAdams and de St. Aubin [9] introduce seven interrelated features of generativity: cultural demand, inner desire, generative concern, belief in species, commitment, generative action, and personal narration (p. 1). The creation of the Loyola Generativity Scale attempts to assess self-reported acts and autobiographical experiences to of measure the psychosocial dimensions of generativity. McAdams and de St. Aubin [10] elaborate further by pointing to "generativity scripts" or the stories people construct to answer the question of generativity. These stories outline what a person plans to do to ensure that he or she leaves a legacy for the next generation. They posit that identity deals not only with the past and present, but with future life plans of generative action manifested in the life stories or generativity scripts of individuals. Finally, Slater [11] gave new breadth to Erikson's crisis of generativity *versus* stagnation by highlighting the ways in which each of the other seven stages in Erikson's eight-stage model of the life cycle is present and expresses itself as a dimension of middle adulthood. Following Erikson's lead, he presents inclusivity *versus* exclusivity, pride *versus* embarrassment, responsibility *versus* ambivalence, career productivity *versus* inadequacy, being needed *versus* alienation, and honesty *versus* denial (pp. 59–64). Overall, the developmental concept of Generativity continues to be an effective tool for understanding how mature adults care for the next generation.

Relevance to Childhood Development

The goal of societal generativity directly involves a person in guiding and establishing the next generation. Stagnation in this period of life is counterproductive to the development of successive generations. Lack of generativity can lead to placing excessive pressure and expectations on children to redeem what adults or parents failed to do. Unrealistic burdens such as these hinder a child's development instead of promoting it. Additionally, the adult does not just fulfill the needs of children; children also fulfill the adult's need to be needed. In this sense, a mutual exchange takes place. Viewing a child in this way implies interconnectedness within the life cycle. In essence, based on whether an adult is generative or stagnant, this stage can either promote or hinder the flourishing of the next generation and future generations.

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Genetic Blueprint

▶Maturation

Genetic Disorder

►Turner Syndrome

Genotype

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Definition
The genetic make up of an individual or group.

Description
The genotype determines the hereditary characteristics of an individual and is sometimes considered as the allele constitution of any particular trait. Among individuals who are the product of sexual reproduction, the genotype represents the complete set of genes transmitted by both parents. The genotype is often contrasted with the phenotype which refers to individual characteristics determined by nonhereditary experience.

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Geodon®

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Synonyms
Ziprasidone

Definition
A prescription medication FDA approved for the treatment of schizophrenia, acute manic or mixed episodes associated with bipolar disorder, and in acute agitation in people with schizophrenia.

Description
This medication is an atypical antipsychotic available in capsule or injection.

The recommended starting dose for the oral capsules is 20 or 40 mg twice daily. Maximum recommended dose is 160 mg a day. This medication should only be taken as directed by a doctor. The intramuscular injection form of this medication is generally just used in the hospital setting.

This medication should be taken with food. Avoid drinking alcohol. Inform your doctor if you have kidney disease, a personal history or family history of heart problems, or other medical conditions.

Some side effects are listed here: twitching or muscle movements you cannot control, sleepiness, headache, dizziness, nausea, chest pain, change in heart rate, rash, anxiety, weight gain, and weakness. Tell your doctor immediately if you notice the following: fainting, slurred speech, or irregular heartbeat. The doctor may check your potassium level with a blood test. Geodon may cause an increase in blood sugar levels and possible weight gain. Elderly patients with dementia-related psychosis taking this class of medications are at increased risk of death. This medication may cause lightheadedness when going from a lying or sitting position, so it is recommended to get up slowly.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development
Geodon® is not FDA approved for use in children.

Women should let their doctor know if they are pregnant or planning to become pregnant. Talk with your doctor before breastfeeding.

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Gerstmann Syndrome

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Synonyms
Angular gyrus syndrome

Definition

Gerstmann syndrome is a condition that consists of a tetrad of neuropsychological symptoms including agraphia, acalculia, finger agnosia, and right-left disorientation. The presence of these four symptoms suggests cortical dysfunction in the left parietal lobe. The autonomous nature of the syndrome is debated, and some posit that a developmental form also exists.

Description

Gerstmann syndrome was first identified and described in a paper by Josef Gerstmann in 1924. In this paper, a case was presented of a patient who exhibited inabilities to write, to perform mathematical calculations; to recognize, name, or identify fingers; and to discriminate the right and left sides of the body. Gerstmann later reported additional cases of patients with the same tetrad of symptoms, and he hypothesized that these cardinal symptoms resulted from a lesion in the left angular gyrus [7, 14]. Gerstmann believed that a unifying disruption of body image integration, or body scheme, accounted for all four symptoms and was responsible for the shared spatial deficit root of each symptom. Due to this belief of a unifying theme, Gerstmann argued that the symptoms constitute an autonomous syndrome [8].

Researchers and clinicians have subsequently disputed the existence of Gerstmann syndrome as a discrete entity [3, 5]. Cases have been presented consisting of the tetrad of symptoms with no additional deficits [4, 15], often referred to as "pure Gerstmann syndrome." However, patients frequently exhibit a mixed presentation of symptoms, including some or all of the cardinal symptoms along with other symptoms. Some of these other symptoms include constructional apraxia [2], ideational apraxia [6, 14], alexia [3], hemianopsia [5, 15], color agnosia [5], and aphasia [5, 21]. Because of the overlap and variability of the presentation of the cardinal symptoms with these other deficits, it is argued that an autonomous syndrome does not exist [11]. The tetrad of symptoms is less likely to occur in patients without aphasia than in patients with aphasia, refuting the notion that the disorder is purely spatial [21]. The syndrome may develop in primary form, where no additional deficits have been noted within the course of the illness and the tetrad manifests as the primary presentation. The secondary form refers to cases where the clinical presentation initially includes additional symptoms (i.e., aphasia, constructional apraxia) and over time, most resolve with the exception of the Gerstmann tetrad. Generally intact functions in patients who present with pure or partial Gerstmann syndrome include intellectual functioning, memory, and personality [7].

The cardinal symptoms of this syndrome most frequently occur following damage to the left parietal lobe, and for this reason the syndrome is thought by some to carry value in regards to lesion localization. The left angular gyrus, located at the inferior parietal lobe at the temporal and occipital junctions, is more specifically implicated, and accounts for the belief that this syndrome is related to deficits with visuospatial processing [4], mental manipulation of images [15], or body scheme [7]. A unifying theme of spatial cognition is evident [26]. Case reports of pure Gerstmann syndrome entail discrete focal damage to this region, such as in a cerebrovascular accident (CVA) or glioma. Patients may present with Gerstmann symptoms secondary to diffuse damage or focal damage to regions other than the angular gyrus as well. Deficits in addition to the cardinal symptoms are more likely to occur in these cases, such as with patients with diffuse posterior cortical atrophy (PCA) who have been observed to exhibit some or all of the Gerstmann syndrome symptoms [25]. The four cardinal symptoms comorbid with other neurological deficits have also been observed in cases with lesions in the left temporo-parieto-occipital lobes, left posterior frontal lobe, and right parietal lobe in left-handed patients [15]. The additional deficits are assumed to be caused by damage to tissue adjacent to the angular gyrus [7]. Of significance, lesions to the angular gyrus may not produce a pure Gerstmann syndrome, yet the identification of a pure Gerstmann syndrome invariably denotes tissue damage to this specific region.

Finger Agnosia

Patients with finger agnosia are unable to name, identify, recognize, or differentiate their fingers, or imitate finger movements although vision and sensorimotor functioning remains intact. The deficit is not restricted to identifying right versus left [7] and the difficulty is often most pronounced for the three middle fingers [5]. While Gerstmann attributed finger agnosia to a defect with body image, finger gnosis is also mediated by language [14]. The common comorbidity of aphasia with not only finger agnosia, but also the rest of the tetrad of symptoms, supports the claim that Gerstmann syndrome is not a unique disorder but instead the result of multiple presumable etiologies [3]. However, cases of the syndrome without aphasia [16] have corroborated the finding that finger gnosis is an ability reliant upon spatial functioning and can become impaired when language functions remain intact. The left angular gyrus has specifically been

shown during repetitive transcranial magnetic stimulation to disrupt finger schema [22]. Historically, fingers have been instrumental in developing numerical and calculation abilities, which may account for the co-occurrence of finger agnosia and acalculia. When one's ability to recognize and utilize the fingers is blunted, as in a lesion in the angular gyrus, a disruption in arithmetic calculations may ensue, even for adults who do not use their fingers for solving arithmetical problems [22].

Right-Left Disorientation

Gerstmann found that a disruption in the ability to discriminate and identify the right and left sides of the body, for self and others, was also a commonly observed deficit when body scheme was impaired. The disorientation is exhibited despite preserved knowledge of right and left and is often most pronounced for hands and fingers. The disruption usually does not generalize to understanding sidedness for objects outside the space of the body [8].

Agraphia

This term refers to handwriting deficits despite intact letter recognition, reading, motor, and language abilities. Gerstmann conceptualized this writing impairment as a function of the loss of orientation to the hands and body, citing the spatial functioning required to perform the skill [8]. Copying written words may be less impaired that spontaneous writing. Radiographic studies utilizing functional magnetic resonance imaging has confirmed the presence of writing impairments secondary to damage to the inferior and superior parietal cortices [17].

Acalculia

Calculation ability is not thought to consist of one discrete function [1]. Disturbances in calculation can result from not only impaired numerical understanding, but also from other deficits, such as spatial relations, language, and memory. Calculation deficits can occur as result of various neuropathologies involving numerous areas of the brain. In cases of primary acalculia, where the ability to understand and execute basic arithmetical calculations is not based on other cognitive deficits such as attention, memory, or language impairment, the left angular gyrus is implicated in the calculation deficit. Recognition of numbers and understanding of numerical concepts remains intact in primary acalculia. It is this precise type of calculation disturbance that Gerstmann [7] postulated was associated with the other symptoms of his syndrome. When agraphia is also present, the acalculia is more pronounced for written arithmetic than oral [12].

Relevance to Childhood Development

While Gerstmann syndrome typically relates to an acquired condition secondary to cerebral damage, some cases of developmental origin have been reported. In children, however, the symptom presence must be considered relative to the child's developmental level. Rather than absolute inability, a deficient level of skill compared to the expected developmental level of the child may be observed. Developmental Gerstmann syndrome has been recognized more infrequently than the acquired form, possibly due to the difficulty in diagnosing the presence of the symptoms at earlier developmental levels. Another potential explanation for the paucity of information on the developmental form is that other, more well-recognized disorders better account for the symptoms. In the acquired form, symptom onset results from an injury, such as a CVA. The developmental form differs in that no specific injury is identified as the etiology of the symptoms, yet cases have been reported in children both with and without neurologic insults [19]. In case studies with children who exhibit developmental Gerstmann syndrome, soft neurologic signs suggesting parietal lobe involvement, such as gait disturbance, hypertonia, and tremor have also been reported [24]. The syndrome has been hypothesized to be attributable to learning disorders [13], perinatal trauma [12], and developmental delays, but no known etiology exists [18]. Related disorders that may better account for the symptoms of Gerstmann syndrome in childhood include Fragile X syndrome, Williams syndrome, nonverbal learning disabilities, and Asperger's syndrome. Abnormalities in the left parietal lobe often seen in Fragile X syndrome may account for the presence of the cardinal Gerstmann symptoms [9]. In Williams syndrome, which may also include visuospatial deficits, pronounced attention and verbal memory deficits are also seen [10]. Regardless of the presence or absence of developmental Gerstmann syndrome, nonverbal learning disabilities are characterized by impairments in social judgment and problem solving, and Asperger's syndrome includes deficits with social interaction, communication, and personal interests [18].

Finger Agnosia

Diagnosis of finger agnosia can be difficult in children, as this ability typically develops in later childhood to early adolescence [5]. The term is often used to describe distinct dysfunction in either finger identification or finger naming. In finger identification dysfunction, the child cannot point to or select a given finger on request. Finger naming dysfunction, also called finger anomia, entails the child's inability to name specific fingers on request. In the

developmental form of Gerstmann syndrome, either or both functions may be impaired [24].

Right-Left Disorientation

It is has been demonstrated that the majority of children can discriminate the right and left sides of their body by eight years of age [5]. Right-left disorientation may be seen as slowness or hesitation in responding to tasks requiring right and left differentiation rather than a complete lack of right-left orientation. Simple knowledge of right and left may be intact, yet performance of complex commands may be impaired [19].

Agraphia

Levels of writing impairment, called dysgraphia, vary in the developmental form of this condition, often regardless of the developmental level of the child [18, 24]. Letter and word formation can be seen as clumsy or illegible, and spelling errors may occur. The impairment may be for spontaneous writing, copying, or both. Letter sequencing and reversal is also common. Demonstrating a visuospatial nature of the symptomatology, the underdeveloped penmanship may qualitatively be considered poor use of space [2]. Disorientation for right and left impacts the manifestation of agraphia in some cases, evidenced by improper use of paper margins, misaligned writing, and disoriented letters [24].

Dyscalculia

The term dyscalculia refers to a developmental lack of acquisition of numerical or mathematical abilities [1]. Developmentally-appropriate understanding of numbers and mathematical concepts remains intact. Dyscalculia may present as difficulty sequencing numbers, writing numbers, or performing calculations verbally or in writing [27]. In dyscalculia, also sometimes referred to as developmental dyscalculia, mathematical abilities are never learned. This impairment contrasts with acalculia, where a previous understanding of mathematical concepts is halted by acquired organic brain dysfunction. In children, the co-occurrence of finger agnosia and dyscalculia are considered evidence of a learning disorder, as numerical concepts and arithmetic skills at early ages are reliant on discrimination of the fingers [26]. The acquisition of simple arithmetic skills can also be understood by examining Piaget's Concrete Operational stage of development [23], where children between the ages of 7 and 11 years typically develop an understanding of the concept of reversibility for logical problem solving. Without ability to utilize this concept, the child may manifest intact abilities, such as language, yet have impaired abilities with ordering and simple arithmetic.

While constructional dyspraxia may or may not occur with acquired Gerstmann syndrome, many consider it the fifth sign of the developmental form [2]. The child may not be able to copy drawings or manipulate blocks, but the impairment is not attributable to sensorimotor deficits. Contrasting with the acquired form, which frequently presents with aphasia, developmental Gerstmann syndrome typically does not occur with pronounced language deficits [13, 27]. Other associated features of the developmental form may include hyperactivity, attention deficit [28], mild language delays, and behavioral problems such as aggressiveness and temper tantrums [24]. Due to the scarcity of literature, varied causal hypotheses, and reduced reliability in diagnosing individual symptoms of developmental Gerstmann syndrome, there is doubt as to whether the syndrome is an independent developmental disorder. A higher incidence of cases with Gerstmann symptoms may be uncovered through more thorough neurological and neuropsychological assessment for children with learning disabilities, as some argue that the syndrome often goes unrecognized. When the syndrome is identified, averting the child's deficits by teaching compensation skills and utilization of strengths remain common treatment approaches [20].

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GEs

►Grade Equivalents

Gestalt Play Therapy

►Play-Group Therapy

Gestalt Therapy

►Humanistic Therapy

Gestures

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Synonyms

Action; Body language; Movement; Nonverbal communication; Signal

Definition

Gestures are bodily movements that are carried out for the purpose of communication. A wave of the hand and a nod of the head are examples of gestures.

Description

Parts of a body (e.g., hand shape, kinetic movement, face, eyes, and posture) and surrounding environments are used simultaneously when we gesture [1]. For example, when someone says, "Here" with a pointing gesture, the place can be understood only as the specific location the person is referring to. Gestures can express different things. Pointing gestures indicate things, persons, or locations as objects of references. Iconic characterizing gestures provide a visual representation of things to show physical and concrete items (e.g., using hands to show how big or small a physical item is). Symbolic designating gestures express abstract ideas in visible forms (e.g., pointing ahead in space to indicate time, "the future"). Emblematic gestures are patterns of gesture that have been conventionalized within a culture (e.g., thumbs up). People also gesture spontaneously during speech. A speaker's specific spontaneous gesture is distinguished from iconic representational gestures and emblems because it does not represent any shared meanings among people as iconic gestures or emblems do. Gestures also differ across different languages and cultures because different languages and cultures organize information about events differently. For example, people from southern India or Pakistan may shake their head from side to side to indicate "you're welcome" or "goodbye."

Gesture, Speech, and Thought

According to research findings, speech and gesture are not separate [2, 3]. In the process of making sense to others,

people use not only language but also gesture as a part of multiple resources, which include physical and cultural environments [1]. People may leave out some words and instead substitute them with gesture incorporating the relevant features of the environment. For example, a person holding a cup of hot coffee in a coffee shop may say to a salesperson, "Please give me" with hand shaking gestures up and down quickly indicating a cup sleeve. The relevant features of the environment in this example include physical environments such as the place (coffee shop) and a cup of hot coffee and cultural environments such as the interpersonal relationships between the customer and the salesperson and the context of holding a cup of hot coffee to take out. In meaning-making processes, speech and gesture occur almost at the same time at the very moment of expressing thought. Whereas speech is used to convey more conventional, segmental, and sequential meanings, gesture reflects instantaneous, global, and holistic thought in order to provide additional features of meaning accompanied with utterances.

Functions of Gestures

Why do we gesture? Individualized spontaneous gestures function for the speaker to compensate for or spur verbal formulation. Gestures can help people keep complex concepts in mind or retrieve certain words. Gestures can be regarded as a resource to construct discourse, which is composed of multiple resources such as speech, gesture, and relevant parts of physical and cultural environments. Gestures reflect a dynamic process of thinking for speaking [2]. They show a relationship between language and thought representation in the mind. Speech gestures are generated during the conceptual process for speaking, in which speech and gesture take place at the same time. Gestures also function as a cohesive device as people narrate discourse. There is a recurrent of one or more gesture features that spread out over a stretch of discourse to maintain reference and achieve cohesiveness in the discourse [3]. Gestures can also reveal meanings beyond speech. Gestures stimulate thought processes as people prepare gestures in advance. People enact their thoughts through gestures and express aspects of utterance content in visible forms.

Sign, Gesture, and Language

Sign language developed among the deaf shows an indirect relationship to spoken language [4]. Sign languages developed in deaf communities, for example, American Sign Language, are full-fledged languages, which are distinguished from spoken language and spontaneous individualized gestures. Sign language helps deaf children learn and develop resilient properties of language.

Relevance to Childhood Development

Gestures play a facilitating role in communication and in early language development [5, 6]. Gestures are used to communicate before children use their voices to express something. Infants can start understanding and using simple gestures around 6–8 months of age (e.g., rhythmic hand movements) [7]. Babies begin to use pointing gestures around 8–10 months of age [7]. Gestures not only precede language development but also have a close relationship to children's development of words and grammatical structures. For example, babies who are producing single-word utterances may use gestures in combination with words to produce sentence-like combinations (e.g., saying *want* and pointing to candies). These types of gestures and word combinations occur around 18–20 months of age [7]. Gesture continues to facilitate, expand, and speed children's early language repertoire over childhood development.

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Gf

▶Fluid Intelligence

Gibberish

▶Babbling

Gifted and Talented Children

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Definition

Gifted and talented is a label that describes children who possess exceptionally advanced abilities in one or more performance areas.

Description

Identification

Traditionally, gifted children were identified and defined by their advanced intelligence, which was assessed by an IQ test. By this qualifier, a child was deemed gifted if he or she produced scores of approximately 130 or above or the 95th percentile. However, in many cases, there are now other ways for children to qualify and be identified as gifted [5]. Advanced scores on achievement assessments, exceptional grades in school, creativity, leadership, and observed advanced skills are just some of the additional components that may be used in combination with an IQ assessment to identify gifted children from the correction given [3].

Traits

Because gifted children can now be identified in many different ways, it is more difficult to distinguish characteristics that only belong to gifted children. If a child is a gifted pianist, than the child's abilities will surely be seen in his or her ability to play the piano. If a child is a gifted mathematician, than the child's abilities will shine while computing formulas and equations. The commonality among the different types of giftedness is the advanced nature of the ability. Gifted children are also often noted for their creativity, leadership skills, and advanced cognitive development.

Services

States vary on how they provide services to gifted children. Some states provide no services, and others provide comprehensive programs including advanced coursework and separate classes for every grade level in all subject areas for gifted students. There is currently no mandated federal funding for gifted education. However, the Javits Act provides funding to gifted education programs serving traditionally underrepresented students [1, 4]. The Javits Act funding is highly competitive. Also, in states that provide services to gifted students, there is not a uniform method for organizing such services into the educational system. Some states place gifted programs within Special Education; others place gifted services within general education programming.

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Giggle

▶Laughter

Gilles de la Tourette's Syndrome

▶Tourette Syndrome

Girlhood

▶Femininity

Girly

▶Femininity

GLA Deficiency

►Fabry Syndrome

GLBTQ

►Homosexuality

Global Assessment of Functioning Scales

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Synonyms

CGAS; C-GAS; Children's global functioning; GAF; GAPD; Social adjustment

Definition

Global assessment of functioning scales are intended for use by mental health professionals to rate the overall functioning of their patients, taking into account occupational/school, social, and psychological symptoms.

Description

There is consensus that clinical indices of overall functioning have utility in treatment of mental illness and impairment [3]. Functional impairment is often the impetus for clinical referral and entry into treatment [4]. Additionally, global assessment scales allow clinicians to integrate information from many areas of the patient's functioning into one clinically meaningful index [2]. This information can then be used in planning treatment and evaluating outcome of interventions.

The Global Assessment of Functioning Scale (GAF; [1]), the Children's Global Assessment Scale (CGAS; [2]), and the Global Assessment of Psychosocial Disability (GAPD; [5]) are the three most commonly used measures of global assessment of functioning. All are numeric scales intended for use by mental health professionals to assess the general functioning of their patients. The GAF is designed for use with patients of any age, whereas the GAPD is intended specifically for use with children under age 18, and the CGAS is for use with patients aged 4–16. The psychometric properties of all three scales have been recently summarized [3].

Each scale has specific instructions regarding which areas of functioning to assess and which to exclude (e.g., impairment due to physical or environmental limitations), and each differs in terms of the timeframe during which the rating is being made (see [3] for overview). The scales contain clinical descriptors of functioning/symptoms as benchmarks or anchor points, and ratings are made on the lowest level of functioning for the CGAS and the GAPD, whereas the GAF does not specify how to rate if functioning levels vary.

Relevance to Childhood Development

None of the scales has established psychometric properties for children under 4 years of age, and the reason for selecting age 16 as the upper limit for the CGAS is undocumented [3].

A developmental disabilities modification of the CGAS was published in 2007 (DD-CGAS; Wagner et al.) as the descriptors in CGAS scores are not easily applied to children with developmental disabilities. The DD-CGAS was found to be reliable, with apparent convergent validity for measuring the global functioning of children with Pervasive Developmental Disorders [4].

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Globus Pallidus

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Definition

The Globus Pallidus is the medial portion of the lenticular nucleus, narrowly, and one part of the basal ganglia broadly, which plays a prominent role in motor modulation [2].

Description

The globus pallidus is one portion of the basal ganglia, which is a cluster of subcortical structures that have been tied to the modulation and regulation of motor activities and has also been linked to procedural memory. Together as a working whole, the basal ganglia demonstrate complex interconnections between sensory centers and the cerebral cortex that participate in the control of higher-order movement, particularly in starting or initiating movement [3]. While it is part of the basal ganglia, more narrowly the globus pallidus represents the medial portion of the lenticular nucleus [2]. In terms of its influence on motor activity, the globus pallidus reflects the site at which the excitatory and inhibitory motor pathways of the motor cortex converge [1]. More specifically, this convergence occurs at the internal part of the globus pallidus. The globus pallidus in turn projects to the thalamus and the thalamus in turn projects to the motor cortex [1]. It is the actions of these thalamic projections that controls the size and force of a movement that the cortex produces; however, given the globus pallidus influences the actions of the thalamus, functionally it is likely difficult to separate one from the other. As a result, the globus pallidus may be perceived as determining how weak or how strong a movement may be [1].

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Glutethimide (Doriden)

►Depressants

Go/No-Go Task

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Synonyms

The go/no-go task is similar to the stop-signal task in that both investigate the ability to inhibit a response.

Definition

The go/no-go is a cognitive task aimed at determining the ability of an individual to inhibit a response deemed inappropriate.

Description

Experimental paradigms measuring response times (RTs) often assess how the information-processing sequence of perception, decision making, and action are organized. A tool commonly employed in this endeavor is the two choice task which typically requires participants to respond to a presented stimulus using one of two possible choice responses [6]. An alternative tool is the go/no-go task where participants are required to either respond (i.e., pressing designated key) or withhold a response (not pressing designated key) depending on whether a go stimulus or a no-go stimulus is presented (Verbruggen & Logan, 2008). It has been argued that compared to the two choice task, the data collected from go/no-go procedure provides a higher signal-to-noise ratio [7]. The stop-signal task paradigm closely resembles a choice reaction task with the exception that during the presentation of a series of trials, a random presentation of a stop signal will appear (Verbruggen & Logan, 2008). The stop signal indicates to participants that a response should be withheld. The ability to suppress a response (i.e., response inhibition) has been extensively investigated using the stop-signal procedure [10] and go/no-go task (Verbruggen & Logan, 2008). Although there is a tendency for some investigators to treat the go/no-go task and the stop-signal paradigm as one of the same, recent evidence has suggested that differentiating the two may be justified upon the grounds that response inhibition may not achieved in the same way across the two paradigms (Verbruggen & Logan, 2008).

Relevance to Childhood Development

The role of behavioral disinhibition is considered fundamental by a number of models of developmental

psychopathology [3]. In general terms, inhibition refers to the ability to ignore extraneous information or to prevent an inappropriate response [5]. One's inhibitory capabilities, whether suppressing a thought, emotion or a particular behavior, is considered to be a key feature of executive control [9]. Executive control refers to a group of interrelated abilities that promote the ability to pursue some thoughts and behaviors whilst suppressing others [1]. With regard to childhood development, inhibitory control is subject to rapid development in childhood between the ages of 3 and 5 [15]. As the capacity of inhibitory control increases with age [17] there is the risk of impairment as implicated in attention deficit/hyperactivity disorder (ADHD) [13].

ADHD is associated with deficits in sustained attention (or inattention), response inhibition, and hyperactivity amongst others [16]. This line of research was mainly prompted by clinical observations linking excessive distractibility, impulsivity, and hyperactivity with failures in inhibition [2]. The go/no-go procedure has proved to be a popular tool in showing that children diagnosed with ADHD exhibit poor inhibitory control [14]. Similar findings were also found with the stop-signal task [12]. There is some evidence, albeit tentative, that behavioral disinhibition has also been found in patients diagnosed with conduct disorder [8]. Nevertheless, there are suggestions that ADHD should be first and foremost be seen as a dysfunction of behavior inhibition [2].

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Gonads

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Synonyms

Balls; Testes; Testicles

Definition

From the Greek work, *gone*, meaning *seed*. It refers to a seed producing gland, such as an ovary or a testis [1].

Description

Gonads typically refer to the male sex glands. These glands usually occur in pairs. They are located in an external sac of skin in humans called the scrotum behind the penis. The gonads produce and store sperm and are the male's primary source of male hormones, such as testosterone. These hormones control the development of the reproductive organs and other male characteristics, such as body and facial hair, low voice, and wide shoulders [1].

Relevance to Childhood Development

The male sex glands, gonads, provide the male gamete, or *seed*, that joins with the female gamete to form a zygote

from which the embryo develops. The male seed helps to determine the sex of the zygote and the characteristics inherited from the father. As the male child progresses through puberty, the gonads release the male hormones that control the development of the reproductive organs and other male characteristics [1].

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Good-Enough Mother

►Object Relations Theory

Goodenough/Harris Drawing Test

►Draw-A-Person Test

Goofballs

►Depressants

Gordon Diagnostic System

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Synonyms

Computerized assessment of attention and self control; Computerized behavior assessment; Continuous performance test; GDS

Definition

The Gordon Diagnostic System (GDS) consists of 11 tests that aid in assessing Attention Deficit Hyperactivity Disorder.

Description

The GDS is a portable, microprocessor-based continuous performance test often used in assessing Attention Deficit Hyperactivity Disorder. The GDS can also be used as a monitor of stimulant medication and as a neuropsychological assessment of post concussion syndrome, closed head injury, neurotoxicity, Fragile X Syndrome, and Alzheimer's disease. The evaluative tests used in the GDS are Standard Vigilance Task, Standard Distractibility Test, Delay Task, Preschool Delay Task, Preschool Vigilance "0" Task, Preschool Vigilance "1" Task, Vigilance "3/5" Task, Adult Vigilance Task, Adult Distractibility Task, Auditory Vigilance Task, and Auditory Interference Task [1]. The outcomes of the evaluations are shown on a printout via the automatic printer output on the instrument. The printout notates the number of correct responses, incorrect responses, and failures to respond.

The GDS has been standardized on approximately 1,300 4–16 year olds. Standardization was primarily performed on a limited selection of individuals in the upstate area of New York, but additional protocols from various populations, including deaf, blind, emotionally disturbed, learning disabled, and Spanish-speaking have been gathered [2]. When the GDS is being used for its primary purpose of providing a behavior-based measure of inattention and impulsivity, three of the tests are used: Delay, Vigilance, and Distractibility. The Delay task provides a measure of the child's ability to inhibit impulsive responding. The Vigilance task assesses the child's ability to sustain attention, respond correctly, and inhibit incorrect responding. The Distractibility task assesses the child's ability to differentiate extraneous stimuli while responding correctly, and inhibiting incorrect responses. Moderate correlations with neuropsychological instruments, behavior-based measures, and teacher and parent evaluations of attention deficit hyperactivity disorders have been found although validity studies have primarily been performed by the developers [1, 3]. The developer recommends that the GDS is to be utilized as only one resource of data to be combined with other resources in evaluating and diagnosing attention difficulties.

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Grade Equivalents

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Synonyms

Developmental norms; GEs; Grade scores; Norm referenced scores

Definition

A type of test score describing an individual's performance in relation to the performance of typical students at a given grade level.

Description

Grade equivalent scores are commonly used in reporting students' performance in educational settings. Most often, these scores are used to describe performance on academic achievement tests, though grade-based norms and grade equivalent scores are available for some other types of standardized assessment instruments (e.g., cognitive assessment instruments, speech and language assessment instruments).

Grade equivalent scores can be calculated for a test by finding the median (i.e., the 50th percentile) score obtained by children at each grade level on that test. Children who earn the median raw score for a given grade level are assigned a score equivalent to that grade level. Grade equivalent scores are generally expressed numerically in decimal format, with the number to the left of the decimal representing the grade, and the number to the right of the decimal indicating the number of months completed in that grade. For example, a grade equivalent score of 5.8 on a test would indicate that the student receiving that score answered the same number of items correctly as the typical student who has completed eight months of fifth grade.

Despite their frequent use, grade equivalent scores are prone to misinterpretation. Since grade equivalent scores represent a student's performance on a single test, they should not be interpreted to mean that the grade level represented by the grade equivalent score would be more appropriate for the student, or that, overall, the student is performing at the grade level indicated by the score. In other words, if a fifth-grade student obtains a grade equivalent score of 6.0 on a test of reading skill, it means that that student got the same number of items right on that test as the typical sixth-grader in that test's norming sample; however, it does not necessarily mean that the student reads or requires reading instruction at a sixth-grade level. Additionally, grade equivalent scores do not necessarily increase smoothly as the number of correctly answered items increases. For example, imagine a hypothetical academic achievement test on which the typical third-grader gets 17 items right, the typical fourth-grader gets 19 items right, and the typical seventh-grader gets 21 items right. For a student with a raw score of 17, increasing performance by two points (i.e., to 19) would increase that student's grade equivalent score from 3.0 to 4.0; however, if a student with a raw score of 19 got two additional items right, that student's grade equivalent score would increase much more dramatically (i.e., from 4.0 to 7.0). Finally, if the students who participate in the norming process for a given test are taught academic skills in a different sequence from test-takers, grade equivalent scores are likely to provide inaccurate estimates of skill levels. For these reasons, grade equivalent scores should be reported and interpreted with caution.

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Grade Retention

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Synonyms

Failing a grade; Non-promotion

Definition

Grade retention is the practice in which children are required to repeat a grade level in school because they failed to meet required benchmarks or grade level standards.

Description

Grade retention, which has been increasingly implemented in recent years, is considered one of the most scrutinized

and debated practices in education. Historically, students have been retained by well-meaning school-based decision-makers when it was believed that holding the child back would allow him/her the opportunity to "catch-up" socially or academically with peers. While teacher-based retention continues, since the 2001 No Child Left Behind (NCLB) Act, large-scale test-based retention polices have been enacted by several states in an effort to address student progression and to end social promotion. Students who fail to meet grade level standards, typically assessed by standardized tests, must be retained according to state law. This has resulted in greater numbers of students retained than ever before in the United States.

Recent estimates indicate that as many as 15% of children are retained each year, with boys, minority students, and poor children retained at the highest rates [9]. Grade retention can occur at any grade level, but practices vary depending on the source with teacher-based retentions occurring in the early grade-school years and test-based retentions occurring throughout the school career at grades designated by state policy.

Relevance to Childhood Development

Despite the widespread use of grade retention as an intervention, the preponderance of the research suggests there are many long-term negative consequences for children as a result of this practice. While some studies suggest short-term gains in retainees, meta-analyses involving 80 studies failed to support greater levels of academic achievement in retainees when compared to low-performing promoted peers [7]. Additionally, a strong correlation between retention and high school drop-out exists, with one recent longitudinal study finding that compared to promoted students, retained students were five to nine times more likely to drop out of high school [6]. Further, another study found that retainees were much less likely to enroll in college even if they did graduate from high school [4].

In addition to the lack of support for increased academic achievement when using retention as an intervention, negative social-emotional consequences for retained students have been investigated as well. Retention has been found to give rise to the development of low-self esteem in retained students, since these students are usually teased by other non-retained students [2]. Studies have found that children view being retained as a form of punishment and often feel stigmatized throughout their school career [10]. Further, research suggests that children perceive retention as one of the most significant stressful life events that can occur [1, 11] and that it becomes increasingly stressful as the child ages.

With regard to claims that retention enhances the behavioral and social-emotional functioning of children when compared to promoted students, the research is unsupportive as well. In one study, an existing relationship was found between peer rejection and academic outcomes, especially for retained students [8]. Other studies have indicated that retained students are at greater risk of exhibiting disruptive and aggressive behaviors [3, 6] and display poorer social adjustment and more problem behaviors when compared to matched controls [5].

Given the evidence that grade retention is generally considered harmful in many ways, evidence-based alternatives to retention are currently being investigated and implemented. These include incorporating system-wide prevention efforts such as high quality preschool and early reading programs for targeted at-risk groups, as well as providing effective instructional and/or behavioral interventions for students who are identified as experiencing difficulties [7].

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Grade Scores

►Grade Equivalents

Graduated Learning

►Dynamic Assessment

Grain Alcohol

►Alcohol

Grammar

►Morphology
►Syntax

GRE/SAT Score

►Standard Scores

Grey Matter

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Definition

Grey matter is a form of tissue found in the brain and spinal cord that contains neuronal cell bodies and capillary.

Description

Grey matter is a form of tissue found throughout the Central Nervous System. It is so termed based on its characteristic grayish-brown color. Grey matter obtains its color from the neuronal cell bodies and capillaries that make up the tissue [2, 3]. This is important because the functionality and survival of the neurons within the system are dependent upon the integrity of the cell body which controls and maintains the neuronal structure [4]. The presence of grey matter within the various areas of the Central Nervous System demonstrates that nerve cells have their origins and are making rich interconnections in these regions [1]. In terms of its' presence in the Spinal Cord, grey matter is found in the inner part. Functionally, grey matter in the Spinal Cord is composed of cell bodies which help organize movements carried out peripherally [3]. This conduction is made possible by the grey matter also representing the area from which the ventral roots of the Spinal Cord originate. It is through these circuits that transmissions of signals are sent away from the Spinal Cord to the muscles [3]. In regards to the brain, grey matter predominates in the outer layers, forming the cortex, which may be depicted as those areas where functions are housed.

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Grief

►Cross-Culture Perspective on Bereavement Springer

Grief Work

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Definition

Grief work is the working out of psychological issues connected with grief [4].

Description

Grief is a highly personal experience to which some people recover fairly quickly, while others never do. Grief work is often looked at in three stages. It begins with shock and disbelief, during which the bereaved person begins to accept the painful reality of the loss. Next, the person

will gradually let go of the bond with the dead person. They may become preoccupied with the memory of the dead person during this time. The last stage begins when a person readjusts to life by developing new interests and relationships. This pattern of grief work is common; however, grieving does not necessarily follow a straight line from one stage to the next [4].

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Grieving

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Synonyms

Anguished; Inconsolable; Mournful; Sorrowful

Definition

Grief is the combination of thoughts and feelings you experience surrounding loss [1]. It is not only a response caused by the death of someone loved but also a response characteristic of the loss of something or someone significant in an individual's life. Grieving is the process of separating oneself from losses for survival, for effecting necessary changes in life, and for fostering new attachments and commitments [2, p. 375].

Description

Grief is a highly personal experience to which some people recover quickly and others never do [4]. Some basic concepts of grief are that it is a natural reaction to loss, each person's grief experience is unique, there are no "right" and "wrong" ways to grieve, every death is different and will be experienced in differing ways, the grieving process is influenced by a multitude of factors, and grieving never ends [6, pp. 4–6].

The type of response a person will have to grieving is individual and unpredictable. While there are common experiences, each person must go through grief in their own way. Some common response types to grief include behavioral, emotional, social, physical, and spiritual [6].

Mauk and Sharpnack [2] describe three grief response phases, which include avoidance, confrontation, and reestablishment. Avoidance is when a person feels shock, denial, and disbelief. The confrontation phase is a highly emotional state when a person realizes that the significant other or loved one is dead. This phase is the one in which grief is often most intense. The reestablishment phase is the gradual decline of acute grief and the start of reentry into the everyday world.

Another widely studied pattern of grief that is similar to the previous one, and also includes three stages, is defined as a process of grief work. Grief work is the working out of psychological issues connected with grief. It often follows the path of shock and disbelief, preoccupation with the memory of the dead person, and resolution. Although the pattern of grief work just described is common, grieving does not necessarily follow a straight line from shock to resolution [4].

Many experts indicate that to speak of grief "stages" is misleading. Neimeyer [3] explains that all mourners do not follow the same path in their journey, but pass through phases at their own pace. He describes three phases in a typical grief process, which include avoidance, assimilation, and accommodation. Avoidance is when a person avoids the full awareness of reality because it is too painful to absorb. People will often act as if the deceased is still alive, or will imagine they see his or her face. This can be a confusing experience, but it can be said to be a normal reaction to loss. A person in this phase may physically feel numb, distant, or detached from their immediate surroundings. At the behavioral level, one may appear distracted, disorganized, and often unable to complete even routine activities of daily life. The assimilation phase begins as a person gradually starts to absorb the full impact of their loss. One will often begin to experience loneliness, sorrow, and the realization of the loved one's absence. Depressive symptoms likely appear during this phase and include loss of motivation, unpredictable crying spells, pervasive sadness, inability to concentrate, and hopelessness about the future. The last phase is accommodation and occurs as the anguish from the assimilation phase starts to blend into an

acceptance and reality of the death. Gradually, a person will reestablish a greater sense of emotional self-control and return to normal daily living habits.

Relevance to Childhood Development

Death is viewed in many diverse ways, especially at different ages in a person's life. Often a person's attitude towards death reflects their past experiences and their personality. Typical changes in the way a person feels toward death across the life span will depend on their cognitive development and on the typical or atypical timing of the event [4].

In general, there are some important things to remember when a child is grieving. These include remembering that children go in and out of grief, not all children talk about their grief, some children do not seem affected at all, play is one way children will deal with grief, it is not unusual for children to experience physical reactions or difficulty thinking, a child's developmental age will influence their reaction to the death, and it is not uncommon for children to believe that they have seen or heard the deceased person [5].

Children usually do not understand death or loss as final. However, infants and toddlers have an intuitive sense that something serious has happened, even if they do not entirely comprehend what it is. These young children are able to sense the emotions in their environment as well as read the expressions of others. Children who are grieving during this stage in their life will often present reactions which are sensory and physical. Some common behaviors expected at this age include crying, biting, separation anxiety, temper tantrums, and general anxiety [6].

As a child becomes preschool age they are naturally egocentric. They believe that they cause things to happen and that the world revolves around them. Death for them is often an experience of abandonment and may even believe that they have somehow caused the death. A preschool age child will often show intense but brief grief responses and may also regress to earlier behaviors such as thumb sucking or baby talk [6].

Children grade-school age see the world in a more literal sense and need concrete and detailed explanations of loss situations. They may begin to question how their lives will be different with the loss of someone, what may be the same, and may even wonder if a person is truly deceased [6]. They also have short attention spans and will move from one feeling to another rapidly. For these children, grief can often be misunderstood because "sad" emotions are quickly turned into happiness and playfulness. One must remember that children grieve with the same emotions that adults do, but for children these emotions come and go in a different way [8]. As children grow older they will begin to understand that death is final. With this feeling of finality, they may also being to worry about their own death and the death of others. The school age child will often show some common behaviors when grieving that include fighting, anger, withdrawal, regression to earlier behaviors, and not completing assignments [6].

It is important to know that many factors can influence how a child copes with death. Some of these include the nature of the death, past experiences with death, response of others to the death, support systems in and outside of the immediate family, as well as consistency and routines [5].

As a child grows older and enters their teen years, their ways of coping with grief continue to change. Adolescence is a time of identity formation and loss must be affirmed as it uniquely impacts the individual person. When an adolescent has a loss that occurs in their life, they are shocked because most of them fell that nothing can happen to them. Our assumptions about the order of the world collapse when loss occurs outside the normally expected timeline of life events [8].

The Dougy Center for Grieving Children (2004) indicates that there are six basic principles of teen grief. They report that grieving is the teens natural reaction to a death, each teen's grieving experience is unique, there are no "right" and "wrong" ways to grieve, every death is unique and experienced differently, the grieving process is influenced by many issues, and grief is ongoing.

When you look at adolescence broken down even further into middle and high school ages, even more differences in dealing with grief can be seen. Middle school students are experiencing a vast amount of disorder due to the physical and hormonal changes in their bodies. When the additional stress of grief is added to this they will likely experience a range of emotional reactions. This is also the time in which a teen will begin to get their principal support from friends rather than family. Some other common grief behaviors to expect in a middle school student include anger, fighting, moodiness, and risk-taking behaviors [6].

As a teen enters into high school they will often become more philosophical about life and death, and may believe that death won't happen to them. Teens at this stage will appear to use an "adult" approach to solving a problem; however, it is important to remember that high school students are not adults yet. Some common behaviors to expect include withdrawal from parents or other adults, pushing the limits of rules, lack of concentration, evidence of crying, sleepiness, angry outbursts, and increased risk-taking behaviors [6].

No matter what age a teenager actually is, their level of emotional and physical maturity, past experiences and family dynamics all influence his or her grief response. A grieving teen may feel conflicted about letting go of the deceased, attached to (yet separated) from the deceased, embarrassed about showing emotions, ambivalent about the person who died, or awkward about being different from their peers [7].

Some overall reactions to grief from a teen may include academic problems, crying, eating problems and disorders, nightmares and dreams, physical reactions, playing, regressive behaviors, suicidal talk or behaviors, sensory experiences. Some common emotions include anger, frustration, guilt, anxiety, isolation, relief, revenge and rage, sadness [7].

Even though grieving manifests itself differently from adults, the needs leading in the direction of resolution are the same [2]. Some basic needs of a grieving teen (or child) include assurances, boundaries, choices, food, listeners, models, privacy, recreation, routines, sleep, and truth [7]. One must remember that a child's grief responses are natural reactions when they are experiencing the loss and separation from someone they were close to and/or loved [2].

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Gross Impairment in Reality Testing

►Childhood Psychosis

Group Activity Therapy

►Play-Group Therapy

Group Embedded Figures Test

►Embedded Figures Test

Group Homes

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Synonyms

Extrafamilial home; In residence; Residential care; Residential group care; 24-hour care

Definition

Group homes are community based care facilities designed to provide resources to children and youth who experience abuse and/or neglect and must be removed from their homes. Group homes also include residential treatment centers for children with mental disorders and/or disabilities [5]. Group homes vary by community and include staffed residential homes and large institutions like residential schools, detention facilities, mental health centers, psychiatric wards, boarding schools, or orphanages (Anglin 2002). They do not include foster homes or family-based homes.

Description

Group home care is one of the most common community-based residential treatment placements for youth with the most difficult to treat combinations of psychiatric disorders, aggressive behavior, and histories of complex and extended personal and family problems [4]. Group homes employ staff members to attend to and teach children daily living and self-care skills, so that they may be able to provide for and take care of themselves. Daily living skills include cooking meals, doing laundry, cleaning, managing money, and learning to interact socially; self-care skills include bathing, dressing, eating, and taking needed medications [5].

It is important to note that many of the children in group homes are not considered orphans; a majority of

these children have families. The families, however, are unable to provide and/or appropriately care for their children for various reasons. It is important for the children to maintain a link to the biological family because there is a chance that they may be reunited if conditions in the family improve (Anglin 2002).

In group homes, the staff is able to help children address issues with relationships, socialization, economic concerns, and emotional well-being (Anglin 2002). All of these functions are characteristic of family life which group home staff members work to incorporate so that children may get the support that is needed as well as become well-rounded individuals. However, there is research to suggest that these settings fall short of providing a family-like atmosphere because they may not provide love and a sense of belonging (Anglin 2002).

The term "group home" implies that a home-like environment is offered; however, since many group home settings are institutional it is hard to create an intimate, loving experience. The staff of the group home is required to maintain control at all times [1]. Therefore, it is in the overall best interest of the children for the staff to maintain a hierarchy and contain problem situations right away; this results in an incongruence between the desired affects of group home living and the reality [1] (Anglin 2002).

Adequate attention to proper group home care involves sincere and constant engagement with the children and for each individual child as to not hinder their positive development [1]. Important factors to consider include the physical environment, opportunities for social interaction with peers and staff, access to adequate food, and positive attitudes from the staff [1]. Appropriate attention to these factors can predict the quality of children's experiences in group homes.

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Group Investigation (GI)

▶Cooperative Learning

Group Play Therapy

▶Play-Group Therapy

Group Psychotherapy

▶Group Therapy
▶Play-Group Therapy

Group Therapy

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Synonyms

Group psychotherapy; Psychosocial therapy

Definition

Group therapy is a form of psychosocial treatment where a small group of patients meet regularly to talk, interact, and discuss problems with each other and the group leader (therapist).

Description

A psychologist, psychiatrist, social worker, or other healthcare professional typically arranges and conducts group therapy sessions. In some therapy groups, two individuals or co-therapists may share the responsibility of group leadership. Patients are selected on the basis of what they might gain from group therapy interaction and what they can contribute to the group as a whole.

Therapy groups may be homogeneous or heterogeneous. Homogeneous groups have members with similar diagnostic backgrounds (for example, they may all suffer from depression). Heterogeneous groups have a mix of individuals with different emotional issues. The number of group members varies widely, but is typically no

more than 12. Groups may be time limited (with a predetermined number of sessions) or indefinite (where the group determines when therapy ends). Membership may be closed or open to new members once sessions begin.

The number of sessions in group therapy depends on the makeup, goals, and setting of the group. For example, a therapy group that is part of a substance abuse program to rehabilitate inpatients would be called short-term group therapy. This term is used because, as patients, the group members will only be in the hospital for a relatively short period of time. Long-term therapy groups may meet for six months, a year, or longer. The therapeutic approach used in therapy depends on the focus of the group and the psychological training of the therapist. Some common techniques include psychodynamic, cognitive-behavioral, and Gestalt therapy.

In a group therapy session, group members are encouraged to openly and honestly discuss the issues that brought them to therapy. They try to help other group members by offering their own suggestions, insights, and empathy regarding their problems. There are no definite rules for group therapy, only that members participate to the best of their ability. However, most therapy groups do have some basic ground rules that are usually discussed during the first session. Patients are asked not to share what goes on in therapy sessions with anyone outside of the group. This protects the confidentiality of the other members. They may also be asked not to see other group members socially outside of therapy because of the harmful effect it might have on the dynamics of the group.

The therapist's main task is to guide the group in self-discovery. Depending on the goals of the group and the training and style of the therapist, he or she may lead the group interaction or allow the group to take their own direction. Typically, the group leader does some of both, providing direction when the group gets off track while letting them set their own agenda. The therapist may guide the group by simply reinforcing the positive behaviors they engage in. For example, if a group member shows empathy to another member, or offers a constructive suggestion, the therapist will point this out and explain the value of these actions to the group. In almost all group therapy situations, the therapist will attempt to emphasize the common traits among group members so that members can gain a sense of group identity. Group members realize that others share the same issues they do.

The main benefit group therapy may have over individual psychotherapy is that some patients behave and react more like themselves in a group setting than they would one-on-one with a therapist. The group therapy patient gains a certain sense of identity and social acceptance from their membership in the group. Suddenly, they are not alone. They are surrounded by others who have the same anxieties and emotional issues that they have. Seeing how others deal with these issues may give them new solutions to their problems. Feedback from group members also offers them a unique insight into their own behavior, and the group provides a safe forum in which to practice new behaviors. Lastly, by helping others in the group work through their problems, group therapy members can gain more self-esteem. Group therapy may also simulate family experiences of patients and will allow family dynamic issues to emerge.

Self-help groups like Alcoholics Anonymous and Weight Watchers fall outside of the psychotherapy realm. These self-help groups do offer many of the same benefits of social support, identity, and belonging that make group therapy effective for many. Self-help group members meet to discuss a common area of concern (such as, eating disorders, bereavement, parenting). Group sessions are not run by a therapist, but by a nonprofessional leader, group member, or the group as a whole. Self-help groups are sometimes used in addition to psychotherapy or regular group therapy.

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Group-Oriented Cultures

▶Collectivist Cultures

Growth

▶Maturation

Growth Faltering

►Failure to Thrive Syndrome

Guaranine

►Caffeine

Guardianship

►Joint Legal Custody

Guffaw

►Laughter

Guilt

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Definition

Guilt is an adaptive self-conscious emotion, typically evoked in situations of failing to achieve a goal or standard and when failure is attributed to internal transitional states, inappropriate actions, or non-stable internal characteristics such as lack of effort.

Description

Guilt is experienced when an individual fails to meet personal standards or goals even after exerting a great deal of effort to achieve a successful outcome and the end product has personal implications. Individuals experience guilt when they have committed a wrongdoing directly or haphazardly and feel personal responsibility for the consequences [1]. The emotion of guilt includes the self as a frame of reference and involves a certain degree of self-evaluation. Guilt is regarded also as a moral emotion, as it involves some degree of dilemma and conflict; it is based on relationships within a social context and results in the individual's intent to repair the unfortunate situation. The emotion of guilt has specific adaptive purposes. It could prevent transgression as well as encourage reparative behaviors in situations of wrongdoing.

Guilt is experienced in situations of failure attributed to internal factor and when the wrongdoing is perceived as controllable or avoidable [4]. Beliefs about controllability are exemplified by an implicit desire to repair the situation or avoid the wrongdoing in the future, rationalize the misdeed, or confess. In interpreting the wrongful act, the person feels remorseful and regretful. He/she focuses on the behavior that led to the transgression, rather than on making judgments about global imperfections of the self. Guilt co-occurs with other emotional states such as sadness, tension, worry, anxiety and restlessness and is believed to have some genetic underpinning [7]. Gender differences in the experience of guilt are also present. Parent-child transactions in early childhood have been acknowledged to play a substantial role in the socialization of guilt.

Relevance to Childhood Development

Guilt does not typically emerge before the age of 2½ and 3 year and it has both cognitive and social antecedents. One of the prerequisites is the sense of conscience and self-representation, which typically develop between 18 months and 2 years of age. During this age period, the child begins to react with distress when he/she violates a rule or a standard for behavior [3, 7]. The experience of anxiety and discomfort following a wrongful act is considered a precursor of guilt [3]. During the second half of the third year of life, another important cognitive milestone is achieved: the child becomes able to acquire and retain standards and rules for appropriate behavior [4]. Adaptive forms of guilt develop out of parental use of socialization techniques such as reasoning and induction, which consist of clearly defining expectations for appropriate behavior and providing explanation for the nature of consequences of the child's behavioral transgression on others. Induction and reasoning facilitate to a great extent the process of internalization [2, 5]. Evaluative feedback, frequently communicated by parents, enhances the growing child's understanding of the social meaning and significance of his/her behavior and leads subsequently to the internalization of adults' imposed standards for and expectations of acceptable behavior. The growing child acquire the ability to evaluate his behavior in conjunction with those standards, recognizes inconsistencies between the standard and behavior, and experiences discomfort,

anxiety and guilt when they are violated or a transgression is committed [3, 7].

Although young children do experience rudimentary forms of guilt, they do not possess a complete understanding of the emotion; neither can they reason about the factors that trigger it. In younger children's accounts, guilt is often associated with having done something naughty, feelings of regret, and a desire to repair the situation out of fear of being punished. A full understanding of the emotion and its elicitors is achieved later in life when the child acquires the ability to make explicit causal attributions. Before the age of six or seven, children learn to associate guilt with failure. It is not until the elementary school years, however, when they become capable of linking failure to lack of effort or other internal factors perceived in one's control. Thus, older children become more likely to report feeling guilty when failure occurs in the context of avoidable, controllable and preventable factors. In this respect, older children's and adults' understanding of guilt becomes increasingly similar [1, 2, 5].

In addition to normal developmental changes, individual variations in guilt experiences are also present. Girls tend to be more self-conscious and experience guilt more frequently. It has been suggested also that individual differences in temperament could contribute to differential socialization of guilt. That is, a child who is temperamentally predisposed to experience emotions with high intensity, is likely to experience also high levels of distress and discomfort following a misconduct; in turn, the transgression is likely to be attributed to internal to the self characteristics acting as an inhibitor for similar transgressions in the future [3, 7]. Inhibited and fearful toddlers were found to be more prone to internalized conscience at later ages, and therefore, more amenable to socialization and moral internalization [3]. In addition, some children tend to develop maladaptive forms of guilt, the so called "guilt-prone" style, as a result of a repeated exposure to guilt provoking experiences. The proneness to guilt is characterized by rumination over mishaps and misdeeds, blameworthiness, excessively taking responsibilities for negative events, and a sense of unworthiness [7]. It has been suggested that the parental use of socialization techniques such as power assertion and love withdrawal in early childhood is one of the sources of development of maladaptive guilt. Power assertion and love withdrawal are construed as fostering an external moral orientation in the child, which is manifested by lack of concerns about consequences for others and desire to avoid infringement of personal interests. Excessive guilt has been associated also with symptoms of depression [6].

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Gurgle

►Cooing

H

Habit

►Conditioning
►Tics

Habit Reversal

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Synonyms

Behavioral intervention for repetitive behavior disorders; Complete habit reversal; Original habit reversal; Simplified habit reversal

Definition

Habit Reversal is a behavioral intervention for repetitive behavior problems. The original treatment consists of approximately 12 procedures organized in four phases: (1) awareness training, (2) competing response practice, (3) habit control motivation, and (4) generalization training [1]. Subsequent research has resulted in a simplified variation of the treatment. Simplified Habit Reversal (SHR) training consists of four procedures organized in three phases: (1) awareness training, (2) competing response training, and (3) social support training. SHR can be completed in one to two sessions, and it is reinforced through application outside of the session and additional booster sessions. SHR has been found to be effective in treating a wide variety of repetitive behavior problems found in children including motor and vocal tics and Tourette's disorder, thumb/finger sucking, nail biting, trichotillomania, skin picking, and stuttering [7].

Description

Habit Reversal

The original Habit Reversal treatment consists of several procedures organized in four phases: (1) awareness training, (2) competing response practice, (3) habit control motivation, and (4) generalization training [1]. The purpose of awareness training is to make the client aware of the habit through four procedures: (1) response description – the client is required to describe the details of the habit to the therapist while reenacting a typical instance; (2) response detection – the client is taught to detect each instance of the habit alerting them when it has occurred; (3) early warning – the client practices detecting the earliest sign of the habit; and (4) situation awareness – the client identifies situations, persons, and places associated with the occurrence of the habit.

In the competing response phase, the client is taught a specific response pattern that would be incompatible with the habit, thus preventing the habit from occurring. This incompatible response should involve the muscles opposite to those involved in the habit, be capable of being maintained for several minutes, produce heightened awareness of the muscles involved in the habit, be socially inconspicuous and compatible with normal activities, and strengthen the muscles antagonistic to the habit movement. The client is asked to perform the competitive response for 3 min after a premonitory urge to perform the habit or the actual occurrence of the habit. Examples of competitive behaviors include contraction of the neck muscles instead of head jerking and clenching the fists instead of nail biting.

The purpose of the habit control motivation phase is to increase motivation to engage in the treatment consistently. This is done by reviewing the inconveniences, embarrassment, and suffering associated with the habit and implementing a social support system that includes positive reinforcement for success and noting the occurrence of habits and reminding the client to continue practicing the treatment. For children with little or no motivation, parents/caregivers are instructed to physically guide the child through the exercises.

Generalization training is performed to ensure that the client is able to control the habit in everyday situations. The client is asked to practice the exercise through a symbolic rehearsal procedure in which they imagine common habit-eliciting situations, the detection of a habit, and practice performing the competing behavior. Additional practice can be given by engaging the client in casual conversation

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and identifying the occurrence of habits and then practicing the competing behavior.

Simplified Habit Reversal

The SHR treatment can be given in four sessions. The first 1 h session includes an interview, standardized assessments, and the establishment of a system for data collection. The SHR is implemented during the second 1 h session, and the last two sessions are 30 min booster sessions to monitor progress, review treatment implementation, and address any further problems [10].

The information gathered during the initial interview includes identifying the habit, the possible functions of the habit, and the sensory experiences surrounding the habit. The purpose of data collection is to monitor the effectiveness of the treatment and to identify any needed modifications to the treatment. Arrangements should be made to collect data at home in situations where the habit is most likely to occur using video monitoring, parent monitoring, or self-monitoring. Standardized assessments are given to detect the presence of any common comorbid conditions (e.g., depression, anxiety, ADHD). Clients are also asked to bring a person to the next session to help them with the treatment outside of the session (usually a parent/caregiver).

The implementation of SHR in the second session consists of awareness training, competing response training, and social support training. Awareness training contains two procedures: (1) response description, and (2) response detection; the purpose of which is to help the client recognize the habit and the associated warning signs. After giving the rationale for the treatment, the client is asked to describe both the habit and the warning signs in detail. The purpose of response detection is to help the client recognize and acknowledge the actual occurrences of the habit as well as the warning signs. The client is asked to identify both simulated and actual occurrences of the habit and the warning signs.

Competing response training teaches the client to engage in a behavior that is incompatible with the habit or the warning signs. This includes choosing a competing response, demonstrating the proper use of the competing response, teaching them to use the competing response, and having the client demonstrate the use of the competing response. The competing response could be anything that makes it difficult to engage in the behavior, and it should be socially acceptable as well as acceptable to the client. Some examples of competing responses include diaphragmatic breathing for vocal tics, depressed shoulders for shoulder jerking, pressing the lips together for jaw stretching, and making a fist with both hands for nail biting thumb/finger sucking, trichotillomania, and skin picking.

Social support training is provided to ensure treatment compliance. The primary responsibility for the social support is to help the client remember to use the competing response. The social support person is usually asked to praise the client when he or she is seen using the competing response correctly, and remind the client to use the competing response when seen engaging in the habit. Small rewards or tokens for larger rewards are often used to help children participate in SHR outside of the therapy sessions. The social support person is invited to participate in the session after the initial SHR training has occurred, and the process is demonstrated so that they understand the goals and procedures of the treatment. The booster sessions are used to review the data, address any difficulties with the treatment, and to review the procedures.

Research

Because the original Habit Reversal treatment is a package made up of several components, it was unclear which components were actually necessary for treatment effectiveness [4]. The original treatment package is also time consuming and labor intensive, so subsequent research has sought to identify the necessary components for treatment effectiveness and to simplify the procedure.

Awareness training and competing response training when used together have been found to be as effective as the original Habit Reversal treatment in the treatment of motor tics [3]. This has been supported in additional research with tics and nervous habits [4]. Social support was also found to be an important component when working with children [9], but the evidence on the inclusion of this component is mixed depending on the population of interest as later research with a college age population indicated that the social support component was unnecessary for the intervention to be effective [2].

Competing response training is thought to be central to treatment effectiveness [8]. In the original Habit Reversal procedure, it was believed that the competing response lead to a decrease in the habit behavior because it was physically incompatible with the habit behavior [1]. Thus, competing behaviors would have to include opposite muscle groups to those used in the habit behavior. However, subsequent research has demonstrated that both similar and dissimilar muscle groups are equally effective in reducing tics and habit behaviors [5, 9].

The necessary duration of the competing response has also been a subject of investigation [6]. In a study with

adult nail biting, it was found that both 1 and 3 min competing response durations lead to both short-term and long-term treatment effectiveness. Five second competing response durations lead to short-term improvements, but the effects were not maintained long-term.

Clinical Applications

In a child population the original Habit Reversal procedure has been shown to effectively treat motor tics including head/shoulder jerking, elbow flapping, eye blinking, grimacing, and head shaking. Simplified variations have been equally as effective in treating similar motor tics in children. The original and simplified versions have also had limited success in treating the motor and vocal tics and Tourette's disorder in children. Both the original procedure and the simplified variations have been used to effectively treat numerous nervous habits in children including finger sucking, thumb sucking, nail biting, hair pulling, and scratching. Both treatments have also proven effective in treating stuttering in children [7]. The application with adult populations is similar as both the original and simplified procedures have effectively treated repetitive behaviors.

Even though Habit Reversal has strong empirical support, there are still participants who do not respond to the treatment, and clinically, it has been found that additional procedures are often required. Current applications of the treatment typically augment SHR with cognitive restructuring procedures or the acceptance and mindfulness procedures of Acceptance and Commitment Therapy (ACT) and Dialectical Behavior Therapy (DBT).

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Suggested Readings

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Habituation

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Definition

An innate, unlearned reflex that is elicited in response (unconditioned response) to a biologically-significant stimulus (unconditioned stimulus) will typically show habituation if the stimulus is repeated. That is, measures of the response will show orderly decreases in magnitude as the stimulus is repeatedly applied. This change in behavior, known as habituation, can be seen in the withdrawal responses of various invertebrates, including protozoa to tactile stimulation, in freezing-defensive responses of rodents to auditory stimuli, and in the orienting responses of human infants to complex auditory and or visual stimuli, and is one of the most fundamental properties of behavior. More simply put, habituation is the process by which a stimulus loses its attention-grabbing properties, i.e., its "novelty," and decreases in responsiveness to the stimulus are seen when the stimulus is presented repeatedly or for an extended time period. An organism ceases to engage in attending or other responses to the stimulus; the stimulus comes to be ignored [3, 7]. Habituation is often termed "non-associative learning," since only one stimulus is involved and no associations are formed; Habituation is considered one of the most basic forms of behavior change from experience and learning [3, 7].

For some unlearned, innate reflexes, the repeated presentation of the eliciting stimulus results in an increase in measures of the reflex; this effect is referred to as sensitization and is the opposite effect of habituation [8, 13].

What are Some of the Properties of Habituation?

The formal study of habituation goes back nearly a century being described by writers in the early twentieth century, with the basic properties being outlined in the 1930s and again in the 1960s and 1970s. Some nine basic features of habituation were formally outlined and have come to serve as a formal definition of habituation:

1. If a specific stimulus elicits a response, repeated presentations of that stimulus result in decreased response or habituation; the decrease is typically an orderly function of the number of stimulus presentations.
2. If the stimulus is subsequently withheld, the response showing habituation will tend to return or recover with the passage of time, termed spontaneous recovery.
3. If the habituation experience and subsequent opportunity for recovery are repeated in a series, then habituation will progress more rapidly.
4. With all other variables held constant, the higher the frequency of stimulation, the more rapid and pronounced is habituation.
5. With weaker stimulation, habituation will progress more rapidly and be more pronounced.
6. The effects of habituation training may progress below baseline measures of the response.
7. If habituation occurs to a specific stimulus, then habituation to similar stimuli via stimulus generalization also occurs.
8. Presentation of an irrelevant stimulus will result in the recovery of the habituated response, termed dishabituation.
9. With repeated presentation of the dishabituating stimulus of #8, the degree of resultant dishabituation is decreased or shows habituation itself [8, 19].

A modified list of defining features has also been put forth with the following additional defining characteristics:

1. The process of habituation will be disrupted by any unpredictable changes in the eliciting stimulus.
2. Habituation will occur more slowly to stimuli that are presented in a varying manner relative to stimuli presented in a constant, unchanging manner.
3. Spontaneous recovery may occur faster after more rapid rates of stimulus presentation relative to slower rates of stimulus presentation.
4. Spontaneous recovery may be incomplete recovery in that some habituation will persist over a long-time period.
5. Habituation will be observed for most if not all animal species; habituation occurs in response to most stimuli, including events without ingestive consequences such as lights and noises. The rate at which habituation will be observed will differ as a function of the species, the stimuli employed, the responses being measured as well as the individual subject [11].

As defining features, any unlearned behavioral stimulus-response contingency is said to display habituation if the response decrement shows these properties.

How is Habituation Studied with Infants?

In general, studies of human infant habituation will employ variations of some basic protocols and habituation is a means of non-verbal assessment of learning [18]. In measuring the rate of a reflex such as the sucking reflex, researchers will measure the initial baseline rate of sucking to a pacifier equipped with transducers to measure muscle contractions applied to it. Then an auditory stimulus will be presented such as a human voice uttering a speech phoneme such as "ba." In response to a novel stimulus such as this, the rate of sucking will predictably increase but come to decline to baseline levels as "ba" is repeatedly presented, showing habituation. If the phoneme "pa" were to then be presented, the rate of sucking would again increase, demonstrating that the infant can discriminate between these two stimuli [2].

To measure more complex responses, slightly different procedures are used. When an intense or novel stimulus is presented, an orienting response is elicited and an infant (or any person) turns to look and fix their gaze at the source of a visual stimulus or turns their head towards the source of an auditory stimulus, as well as show changes in heart rate, EEG patterns and other autonomic responses. Initially, infants will show this orienting (or orientation) response to a stimulus but after repeated trials of stimulus presentations, infants will no longer respond to the stimulus, showing habituation of the orienting response [14–16]. Researchers in human development have used measures of the orienting response as assessment tools of complex human development, which will be described in the next section.

Habituation procedures have increasingly been employed to assess the covert-behavioral abilities of preverbal infants to study the development of perception, remembering, and what is termed "information processing" as part of basic developmental research [16]. In addition, the measures of habituation obtained with infants have been

shown to be a reliable predictor of long-term development. Indices of the speed or efficiency with which infants show habituation have been shown to predict outcomes in behaviors such as language acquisition as well as more general behavioral outcomes such as verbal and nonverbal intelligence. Infants who show difficulty during habituation or habituate at slower than normal rates have been found to be at increased risk for a range of significant developmental delays. Despite its widespread use, some writers have argued that the precise psychometric parameters of habituation need to be established before any definitive and significant dialog on the predictive value of habituation can be conducted [6, 9]. Some such studies have also been criticized for using highly artificial events as stimuli, such as an artificial voice box, instead of a stimulus with higher ecological validity, recordings of actual human utterances as auditory stimuli.

In spite of cross-study comparisons being obfuscated by procedural differences as well as in the response being measured and that normally-developing infants show a range of individual variations in habituation, acceptable measures of test–retest reliability have been obtained for some measures of habituation. Unfortunately, few such data exist for populations of high-risk infants, among whom the pertinent data would be of greater interest [4, 6].

Why and How Does Habituation Occur?

The observation that habituation is so catholic points to an obvious and basic adaptive significance. Constantly responding to meaningless stimuli would be taxing and wasteful to any organism; learning to not respond to biologically-irrelevant events while still responding to events that are biologically-significant has clear survival value [5, 7].

For some stimulus-response contingencies that show habituation, the physiological mechanisms have been identified and while habituation has 9 (or 14) defining features, only one established physiological process has been elucidated. In studies of simple reflexes of invertebrates, such as a defensive-withdrawal reflex to tactile stimulation, the organism ceases to respond as the repeated stimulation causes a dampening in the synaptic connections between the sensory neuron receptor to an effector motor neuron [7, 17]. The sensory neuron will continue to release its neurotransmitter in response to a different stimulus and the reflex will still occur to a different stimulus but not to the stimulus to which habituation has occurred. That is, the observed change in responsiveness will be stimulus specific but show stimulus generalization to physically similar stimuli [7, 10].

In terms of identifying the biological bases of habituation in vertebrates, less progress has been made but research so far points to similar neural events taking place in distinct lower brain areas depending upon the sensory modality of the stimulus and the nature of the response undergoing habituation. Little if any research has been conducted into the biological basis of habituation in humans but the infrahuman models of habituation are considered more or less applicable [10, 12].

Habituation is a ubiquitous behavioral phenomenon, seen with a wide variety of reflexes of a wide range of organisms in response to repeated stimulation and since it is so universal, it has been argued as having adaptive value [7, 10, 12]. Whether it merely reflects basic behavioral processes such as learning or more complex actions such as attention or memory is debated [1, 7]. Researchers in human development have studied habituation both for purposes of basic research as well as a possible diagnostic mechanism to map and possibly predict developmental delays and or disorders. Habituation will continue to be the subject of human development research for many years to come.

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Haemoglobin

►Hemoglobin

Hair Pulling

►Trichotillomania

Halcion®

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Synonyms

Triazolam

Definition

A prescription medication FDA approved for the short-term treatment of insomnia (difficulty sleeping).

Description

This medication is a benzodiazepine, a central nervous system depressant, available in tablets.

The recommended starting dose for this medication is 0.125 or 0.25 mg taken once a day at bedtime. Maximum suggested dose is 0.25 mg a day. This medication should only be taken as directed by a doctor and is usually taken only for 7–10 days. This medication may become habit forming.

This medication should be taken with or without food. Avoid drinking alcohol and grapefruit juice. It is recommended to be ready for bed, as this mediation acts very quickly. Inform your doctor if you have liver or kidney disease or other medical issues. It is very important that you do not take more of this medication than your doctor prescribed.

Some side effects are listed here: drowsiness, dizziness, confusion, memory impairment, headache, amnesia, lightheadedness, upset stomach, and blurred vision. Certain side effects may go away during treatment. Tell your doctor immediately if you notice the following: slow heartbeat, swelling, or trouble breathing. Signs of an overdose of this medication are slurred speech or confusion, severe drowsiness, severe weakness, and staggering. If these should occur, seek medical attention immediately.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development

Halcion® is not FDA approved for use in children younger than 18 years old.

Women should let their doctor know if they are pregnant or planning to become pregnant. This medication has been shown to cause adverse effects to the fetus. Breastfeeding is not recommended while taking this medication.

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Hallucinogenic Drugs

►Hallucinogens

Hallucinogens

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Synonyms

Hallucinogenic drugs; Psychedelics; Psychoactive drugs

Definition

The term defines substances that produce hallucinations. A number of diseases can also play a role in hallucination, such as some infections, acute brain injuries, delirium, or as a result of high fever. Additionally, poisoning or reactions to toxic substances may lead to psychotic symptoms, as can withdrawal from certain substances (e.g., barbiturates).

Description

The most common hallucinogenic substances can be classified as indole-type hallucinogens and the substituted phenethylamines. The first group, the indole-type, have a structure similar to serotonin, a neurotransmitter, which can disrupt or alter neurotransmission in neurons using serotonin. This group includes Lysergic Acid Diethylamide (LSD), Dimethyltryptamine (DMT), Psilocybin, and Psilocin. The second group, the substituted phenethylamines, are made of substances with similar structures as phenethylamine-type neurotransmitters, such as norepinephrine, epinephrine, and dopamine. These hallucinogens include Mescaline; 2,5-dimethoxy-4-methylamphetamine (DOM or STP); and 3,4-methylenedioxy-amphetamine (MDMA or ecstasy). Because of their structure, these substances also have stimulant properties, aside from the hallucinogenic ones.

Other drugs may have psychoactive properties and cause psychotic symptoms. Stimulants, such as amphetamine, methamphetamine or cocaine, as well as marijuana and hashish may cause hallucinations. Hallucinations in this context are part of a more complex behavioral syndrome, characterized by the alterations of the level of consciousness, and distorted perception of the body and of the environment caused by the disruption of the brain's ability to process the information received through the senses. Hallucinogens affect the autonomic activity in that they can affect the sympathetic and parasympathetic nervous systems, with symptoms such as pupil dilation, exaggerated reflexes, increase in blood pressure, increased body temperature, nausea, and increased heart rate. Other manifestations are acute mental effects such as anxiety, panic attacks, paranoid ideation, confusion and delirium. Some symptoms may persist in clusters and can be diagnosed as hallucinogen-induced mood disorder, hallucinogen persisting perception disorder, and hallucinogen-induced psychotic disorders.

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Halo Effect

►Pygmalion Effect

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Life Dates

1908–1968

Introduction

Halstead was an American psychologist [4] best known for his studies of brain-behavior relationships. With his student, Ralph Reitan, Halstead developed a series of psychological tests that laid foundations for the first fixed neuropsychological battery, the Halstead-Reitan Neuropsychological Test Battery (HRNB). Halstead also proposed using neuropsychological measures to describe neurobehavioral aspects of various diseases and impairments, such as chronic brucellosis and essential hypertension. Moreover, he was interested in the neuropsychological changes involved in the process of aging, biological bases of memory, and auditory and visual perception.

Educational Information

Halstead received his Ph.D. in physiological and comparative psychology from Northwestern University in 1935. After graduating, Dr. Halstead taught at the Medical School at the University of Chicago. During the 1930s and 1940s,

he established a working relationship with two neurosurgeons, Percival Bailey and Paul Bucy, and started the first full-time laboratory for the examination and evaluation of brain-behavior relationships in humans [6].

Halstead's approach to evaluating patients focused on the practical aspects of rehabilitation and adaptive abilities. His observations of patients with cerebral lesions led him to conclude that brain-damaged individuals had wide ranging deficits, of which severity could not be adequately identified or evaluated by any of the existing cognitive tests. Halstead studied brain-damaged persons in their routine and everyday living situations; he noticed that most of them had difficulties with understanding the complex situations and problems, analyzing circumstances, and reaching meaningful conclusions about situations in everyday life. Therefore, many of the assessment procedures developed by Halstead focused not only on the ability to solve a specific problem, but also on the ability to observe and analyze the components of the problem. Working with his patients, Halstead devised and tested an array of tasks that were originally intended to distinguish patients with bran impairments from healthy individuals. These tasks were re-examined by Halstead's student, Ralph Reitan, and eventually formed the nucleus of the HRNB. Ralph Reitan began working with Halstead in his laboratory in the 1940s and extended the work of Halstead by assembling a battery of tests for the comprehensive evaluation of brain-damaged individuals [6, 9].

Accomplishments

Halstead major accomplishment is his impact on the field on neuropsychology and neuropsychological assessment [7, 8]. He was the first to design and clinically study tasks that evaluated the functioning of the brain and nervous system. His work lead to the development of the HRNB, which is shown to be sensitive to not only the effects of brain damage, but also impairments associated with head trauma, tumors, cerebro-vascular accidents, infections, degenerative diseases, learning disabilities, and specific neurological disorders. As such, the HRNB assists clinicians with the identification of a broad range of neurological variables including location, type, severity, and status of brain lesions [1, 2, 5].

Halstead also authored the biological theory of intelligence, which was first described in his book, *Brain and Intelligence: A Quantitative Study of the Frontal Lobes* [3]. Halstead's theory was based on four factors: central integrative field, abstraction, power, and direction. Although the four-factor model of intelligence has not become widely accepted, the theory has been incorporated not only in the HRNB, but also in the model of brain-behavior relations that is the most commonly used in the implementation and interpretation of the Halstead-Reitan battery [6].

Contributions

Halstead's major contribution to the area of clinical neuropsychology was the development of a series of tests that evaluated the brain-behavior relationship in individual subjects. Additionally, he added to the overall body of knowledge in neuropsychology through his study of differential dependence of his tests on various areas of the cerebral cortex.

Halstead authored and researched the original set of tasks that became a core battery of the HRNB. Currently, the HRNB is one of the most researched and widely used clinical measure of the integrity and functioning of the brain in North America. Halstead's work and the HRNB laid the groundwork for a rehabilitation program for patients with brain damage.

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Halstead-Reitan Battery

►Halstead-Reitan Neuropsychological Test Battery

Halstead-Reitan Neuropsychological Test Battery

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Synonyms

Halstead-Reitan battery; HRB; HRNB; Neuropsychological assessment

Definition

The Halstead-Reitan neuropsychological test battery (HRNB) is a compilation of neuropsychological tests designed to evaluate the functioning of the brain and nervous system in individuals aged 15 years and older. Although the test was designed as a tool to detect brain damage, the HRNB has shown to be effective in identifying impairment associated with head trauma, tumors, cerebro-vascular accidents, infections, degenerative diseases, learning disabilities, and specific neurological disorders. The HRNB assists clinicians in the identification of a broad range of neurological variables including location, type, severity, and status of brain lesions [2, 3, 8, 10].

The Halstead-Reitan tests evaluates a wide range of nervous system and brain functions, including: visual, auditory, and tactual input; verbal communication; spatial and sequential perception; the ability to analyze information; form mental concepts and make judgments; motor output and attention; and concentration. The battery does not include specific tests of memory; rather, memory is evaluated within the context of other tests. Administration time for the complete HRNB takes 4–8 h. Test results are affected by the examinee's age, education level, intellectual ability, and – to some extent – gender or ethnicity, which should be taken into account. Of additional importance is the fixed nature of the Halstead-Reitan, which may lead to unnecessary information being gathered, or other information not assessed within the battery being missed [2, 8].

The core tests of the HRNB were developed by Ward Halstead in the 1940s as the part of a larger series of tests sensitive to brain injury [4]. These tests were later combined into a fixed battery by Ralph Reitan. Since its origins, the Halstead-Reitan instrument has grown by gradual addition and revision of its tests. Currently, the HRNB is one of the most researched and widely used measure of integrity and functioning of the brain [3, 9].

The HRNB laid the groundwork for a rehabilitation program for patients with brain injuries, the REHABIT [9]. The REHABIT integrates neuropsychological evaluation with cognitive retraining, using an approach that aims at restoring the individual's functional ability structure (as contrasted with approaches focusing on highly specific deficits or extremely general, non-specific notions of brain damage).

The HRNB core battery includes the following tests: (1) *Category Test*, (2) *Tactual Performance Test*, (3) *Seashore Rhythm Test*, (4) *Speech-Sounds Perception Test*, and (5) *Finger Tapping Test* (or *Finger Oscillation*). These five tests yield seven scores, three of which are derived from the *Tactual Performance Test* (*Total Time, Memory, Location*), which are used to calculate the Impairment Index. Additional Tests in the battery include the *Reitan-Indiana Aphasia Screening Test*, *Grip Strength*, *Sensory-Perceptual Examination*, *Tactile Form Recognition*, and *Trail Making Test* [5]. The HRNB is typically administered along with a Wechsler Intelligence Scale (i.e., The Wechsler Adult Intelligence Scales or Wechsler Intelligence Scales for Children) and a comprehensive measure of personality (i.e., Behavior Assessment System, or Minnesota Multiphasic Personality Inventory) [11–13].

Historical Background

Halstead laid the foundation for the HRNB when he noted that individuals with cerebral lesions displayed a multitude of deficits including motor problems, sensory perceptual problems related to right or left side of the body, and confusion about events and activities. In Halstead's opinion, none of existing intelligence tests were able to measure and assess these deficits. He addressed this problem by creating a series of 10 tests that were based on his biological theory of intelligence. Halstead's biological theory of intelligence was based on four factors: (1) central integrative field, (2) abstraction, (3) power, and (4) direction. Although Halstead's four-factor model of intelligence has not become widely accepted, the theory has been incorporated not only in the HRNB, but also into part of the model of brain-behavior relations that is most commonly used in interpretation of the Halstead-Reitan battery [9].

To create and select the tests, which later became the core of the HRNB, Halstead experimented with tasks that required his participants not only to solve problems, but also analyze and define the problems. His tests were published in 1947 in his text, Brain and Intelligence: A quantitative Study of the Frontal Lobes. Seven of the original 27 Halstead's tests have stood the test of time and now form the core of the Halstead-Reitan tests [8].

Reitan was a doctoral student of Halstead's who started to work with Halstead's tests during the 1950s.

Using seven selected tests, Reitan successfully differentiated individuals with and without brain injury. As existing intelligence test were not able to identify or assess brain injury, Reitan's results showed that neurological assessment of cerebral impairment should be based on a comprehensive clinical approach. In the following years, Reitan removed three of Halstead's tests due to their low ability to differentiate patients with brain injury form non-impaired individuals. He replaced the tests with new measures such as *Trail Making A*, *Trail Making B*, *Sensory Perceptual Examination*, and *Reitan-Indiana Aphasia Screening Test* [2, 8].

The NHNB has been adopted for use with younger populations and released in two new versions: the Halstead Neuropsychological Test Battery for Older Children (HRNB-C) released in 1974 and the Reitan-Indiana test battery for children (RITB-C) released in 1969. The HRNB-C is designed for examinees age 9–14 years, and the RITB-C is designed for examinees age five to eight. Both children versions use subtests from the HRNB, but contain different instructions and some of the subtests have been added or subtracted from the original battery.

Selected Tests from the HRNB

Category test. The Category Test requires the examinee to formulate and test a hypothesis and gives the examinee a positive or negative feedback regarding the hypothesis. Based on the feedback, the examinee can adjust or modify the hypothesis. The Category Test uses a large projection box. Although a computer and book versions of the test exist, the information about their validity and reliability are less available than the information about the original version of the Category Test. The original test requires the examinee to sit in front of a 10-by-8-inch screen on which a series of figures are projected. A total of 208 pictures consisting of geometric figures are presented. For each picture, the examinee is asked to decide whether they are reminded of the number 1, 2, 3, or 4. The examinee must press one of the four keys that corresponds to their number of choice. Each correct answer is rewarded with a pleasantly sounding bell, incorrect answers are punished with a buzzer. The pictures are presented in seven subtests. Correct answers rely on abstract thinking and are derived from color, shape, size, figure, and memory clues. The score is based on a total number of errors made by the examinee. The Category test is the most sensitive of all Halstead-Reitan tests to the effects of brain damage, but does not help determine localization. The test evaluates abstraction ability, or the ability to draw specific conclusions from general information. Related abilities are solving complex and unique problems, and learning from experience, concept formation, abstractions, memory, reasoning, hypothesis testing, and is a classic measure of executive functioning.

Tactual performance test. The Tactual Performance Test is one of the most complex tasks of the HRNB. The examinee is blindfolded before the test begins and seated in a chair. On the table in front of the examinee is a form board containing ten cut-out geometric shapes (cross, circle, square, etc.) and ten wooden blocks matching those shapes. The examinee is first instructed to place the blocks in their appropriate space on the form board using only the dominant hand. The same procedure is repeated using only the non-dominant hand. The third step is to complete the tasks using both hands. After the examinee completes the third task, the form board is placed out of sight and the blindfold is removed. The examinee is then given paper and pencil and asked to draw the form board and the shapes in their proper locations. There is a time limit of 15 min for each trial, or each performance segment. Scoring involves recording the time to complete each of the three blindfolded trials and the total time for all trials combined (time score), the number of shapes recalled (memory score), and the number of shapes drawn in their correct locations (localization score). Generally, the trial for the non-dominant hand should be between 20 to 30 percent faster than the trial for the dominant hand, due to the benefit of practice. If the non-dominant hand is slower than the dominant hand or more than 30 percent faster than the dominant hand, brain damage is possible. Injuries of the arms, shoulders, or hands can also affect performance and should be considered during the test interpretation. Scores should be adjusted depending on education level and may vary depending on age. The Tactile Performance Test allows the clinician to compare left and right hemispheres and estimate the general efficiency of the brain. This test measures sensory ability, particularly; tactual discrimination, nonvisual special awareness, and tactile awareness. It also evaluates motor skills, nonvisual figural memory, ability to learn, and commitment.

Seashore rhythm test (*rhythm test*). The Seashore Rhythm Test requires the examinee to listen to tape-recorded pairs of rhythmic sounds and determine whether the sounds are the same or different. The test contains thirty pairs of sounds. For each pair, individuals respond to the tasks by marking "S" or "D" respectively on their answer sheets. The pairs are grouped into three subtests. The Seashore Rhythm Test evaluates auditory attention, concentration and perception as well as and the ability to discriminate between non-verbal sounds. The test helps detect brain damage, but not localization of damage.

Adequate hearing and visual abilities are necessary to take this test. Scoring is based on number of correct items, with higher scores indicating less impairment.

Speech-sounds perception test. The Speech Sounds Perception Test requires the examinee to listen to tape-recorded nonsense syllables containing the "ee" sound. After listening to each syllable, the examinee is required to identify the correct spelling of the sound from several options. The test evaluates auditory attention and concentration, the ability to discriminate between verbal sounds, and auditory-visual integration. The Speech Sounds Perception Test may also indicate attention deficits or hearing loss. The research shows that individuals with left-hemispheric lesions tend to perform poorly on this test due to verbal comprehension component.

Finger tapping test (*finger oscillation*). The Finger Tapping Test is a measure of fine motor speed and coordination. The examinee is asked to place one hand palm down, fingers extended, with the index finger resting on a lever that is attached to a counting device. The examinee is instructed to tap the index finger as quickly as possible for 10 s, keeping the hand and arm stationary. The test assesses both dominant and non-dominant hands. The task is repeated up to 10 times till five appropriate samples are obtained. Scoring involves using the five accepted trials to calculate an average number of taps per trial for each hand. The test is sensitive to fine motor problems, brain impairment, and laterality of brain lesions. In general, the dominant hand should perform ten percent better than the non-dominant hand, and decreased performance in one hand generally is indicative of contralateral hemispheric weakness.

Reitan-Indiana aphasia screening test. The Reitan-Indiana Aphasia Screening Test is a modification of the Halstead-Wepman Aphasia Screening Test. The examinee is required to name objects, understand spoken language, identify different parts of the body, copy simple geometric shapes, identify numbers and letters, produce spoken language, use simple mathematical skills, and discriminate between right and left. These tasks are designed to elicit responses that are indicative of pathognomic signs of brain damage or are useful in making a diagnosis. Excessive difficulty or failure related to any tasks of the Reitan-Indiana Aphasia Screening Test are useful in identification of dyscalculia, expressive aphasia, receptive aphasia, auditory dysgnosia, visual dysgnosia, dysnomia, right/left confusion, spelling and construction dyspraxia. Scoring of the test can be executed in two different ways. Some clinicians score each item as passed or failed and calculate the total number of errors. Another approach is to look at each task independently and interpret the failures on specific tasks as indicative of a deficit in these areas.

Grip strength. The Grip Strength Test is designed to assess motor skills of the upper extremities. The examinee is asked to stand and with the arms close to his or hers sides while holding a hand dynamometer in one hand. Then, examinee is then instructed asked to squeeze the dynamometer as hard as possible. Alternate trials are repeated for dominant and non-dominant hand. The hand dynamometer can be adjusted to fit different hand sizes; thus, it can be used with children, adolescents, and adults. The Grip Strength Test is sensitive to lateralized impairment in the brain hemisphere contralateral to the weakness observed in either hand. The test also assesses sensorimotor difficulties, and it is used with patients with brain lesions and degenerative diseases that involve motor functions.

Sensory-perceptual examination. The Sensory-Perceptual Examination is composed of several different tasks that assess the integrity of the examinee's auditory, tactile, and visual sensory abilities. The test consists of a tactile finger localization task, auditory perception tasks, visual perception task, and it detects how accurately the examinee is able to perceive unilateral and bilateral sensory stimulation. The test assesses the ability to identify shapes without visual stimuli, the ability to identify the location of unilateral and bilateral sensory stimulation, and visual and auditory acuity. The Sensory-Perceptual Examination measures the auditory, kinesthetic, and visual sensory modalities independently of one another. Moreover, this test is sensitive to laterality of brain impairment. Examinees with lateralized lesions can often identify stimulation when it is limited to one side of the body, but may struggle with the recognition of stimuli that are presented simultaneously on both sides of the body.

Trail making test. The Trail Making Test is composed of two tasks, Trail Making A and Trail Making B. During the Trail Making A, the examinee is presented with a page with 25 numbered circles randomly arranged. The examinee is then asked to draw lines between the circles in increasing sequential order until they reach the final circle. The Trial Making B is a page with circles containing the letters A through L and 13 numbered circles intermixed and randomly arranged. The task requires the examinee to connect circles alternating from numbers to letters in a correct sequential fashion. If the examinee makes a mistake, the clinician quickly points out the mistake, and the examinee is asked to continue the task from the last correct circle. The score is the number of seconds to complete each part. Any errors made during the tasks increase the total time. The test evaluates global cerebral functioning due to the symbolic recognition, which is a left-hemispheric task, and the visual scanning component, which is considered a right-hemispheric function.

The Trial Making Test also assesses mental flexibility, inhibition, processing speed, integration of visual and motor functions, and visual attention and perception.

Tactile form recognition. The Tactile Form Recognition Test requires the subject to identify shapes through the sense of touch. The examinee is asked to identify various objects without visual stimuli and using only the tactile perception. Each hand is evaluated separately. The Tactile Form Recognition Test yields information about astereognosis and the integrity of the contralateral parietal area of the brain.

The HRNB Standardization

The HRNB was never standardized on a representative, [1] stratified sample of healthy individuals. Thus, universal standard scores drawn from a large normative sample are not available [2, 3, 8, 10]. As with other assessment tools that lack detailed standardization procedures, there is much variability in how the RBNB results should be obtained and interpreted. Reitan published the first administration and scoring manual for the HRNB in 1979. Yet, the HRNB manual does not include in-depth reliability and validity information, but rather focuses on the reasons why subtests were included into the battery. There has been several different variations of the manual published since then. Additionally, several variations of the test materials and procedures have emerged. For this reasons, the HRNB is often disputed as the fixed battery approach, which requires extremely well specified and detailed instructions and standardized scoring procedures. In addition, the HRNB was developed to be a single integrated test; however, many neuropsychologists today choose not to use the complete battery but incorporate the Halstead-Reitan subtests selectively into their assessments.

Normative Data

Collection of normative data and the selected sample is one of the major limitations of the HRNB. Halstead developed the original cutting scores for his tests using group of "normals" consisting of 28 (eight females) subjects. Ten of these subjects suffered minor psychiatric disturbances and one was a military prisoner. Three other subjects were awaiting lobotomies due to behavioral problems, which included homicidal and suicidal tendencies. Two of these subjects contributed each set of scores, before and after their lobotomies. Another criticism against the normative group is the relative youth of the group. The range of ages of the group ranged from 14 to 50 years of age (mean = 28.3). Considering that performance on cognitive and neurocognitive tests tends to decline with age, the performance of the elderly examinees is likely to fall in the impaired range despite age-appropriate neurocognitive abilities [8].

Currently, there are several independent editions of normative scores for the battery available for the test interpretation. In addition to Halstead original norms published in 1947, other major sources of norms and test administration have been published and include norms by Russel et al. [14], Heaton et al. [6], and Reitan and Wolfson [10]. Also, it is difficult to compare results between individual subtests of the HRNB due to the lack of standard score transformation data. Despite these limitations, the Halstead-Reitan test remains one of the most validated and researched neuropsychological assessment tools in the world.

Summary Scores

The impairment index by Halstead [4] is derived from five core subtests of the battery that yield seven scores: the Category Test Score, Total Time Score (Tactile Performance Test), Memory Score (Tactile Performance Test), Localization Score (Tactile Performance Test),Seashore Rhythm Test Score, Speech Sounds Perception Test Score, and Finger Oscillation Test Score. The Impairment Index provides an indicator of overall impairment by looking at the proportion of tests in which the examinee performed in the impaired range. The scores on the index range from 0.0 to 1.0. Scores of 0.0 to 50 indicate the lack of brain impairment, and the scores of 51 and above are indicative of cerebral impairment. Because only seven scores contribute to the Impairment Index, and the index does not reflect the degrees of cerebral impairments, other summary scales have been developed to incorporate the performances of a large number of the Halstead-Reitan subtests.

The average impairment index (AIR) by Russel et al. [14] is based on 12 scores each rated on a 6-point scale (from 0 to 5). The seven scores comprising the Impairment Index, Trail Making Part B, Digit Symbol form the original WAIS, Wepman's Aphasia Screening Test with scoring differences for language and spatial errors, and the number of Perceptual Errors on the Sensory Perceptual Examination. The AIR rates the patients' performance on a six-point scale, which contrasts the Halstead's binary diagnostic system.

The alternative impairment index and *alternative impairment index-revised* by Horto [7] are shorter alternatives to the Impairment Index. They are derived from the scores form the Category Test, Seashore Rhythm Test, Speech Sounds Perception Test, bilateral Finger Tapping, and Trail Making A and B. Normal range of performance

on the indexes is 0.0 to 0.2; the impaired range includes scores from mildly impaired (0.3 to 0.4) to severely impaired (0.8–1.0).

The general neuropsychological deficit score (GNDS) by Reitan and Wolfson [10] summarizes 42 Halstead-Reitan measures into four major areas: (1) Level of Performance, which includes 10 variables), (2) Pathognomic Signs, which includes 12 variables, (3) Patterns and Relationships among Tests Results, which includes two variables, and (4) Right-Left Differences, which includes nine variables. Except pathognomic signs, test performances are rated on a 4-point scale (0–3). Scores of 0 to 1 represent normal performance, and scores 2 and 3 represent impaired and severely impaired performances, respectively. The ratings from each item contribute to the GNDS, which determines four different levels of overall performance. As the overall GNDS score ranges from 0 to 168, scores 0–25 signify normal performance, scores 26–40 indicate mild impairment, scores 41–67 refer to moderate impairment, and scores above 68 imply severe impairment.

Levels of Interpretation

Reitan proposed a fourfold approach to inferential decision making using the HRNB. The four areas include: (1) Level of Performance, which involves the comparison of the examinee with normative groups of impaired and non-impaired persons; (2) Pattern of Performance, which refers to the examination of intra-test performance and subtest scores; (3) Specific Behavioral Deficits, which looks at the existence of pathognomonic signs of specific disorders; (4) Comparison of two sides to the body (right-left comparisons), which is looking for discrepancies in test performance which may reveal weakness or lateralized impairment.

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Handwriting

►Dysgraphia

Harsh Discipline

►Corporal (Physical) Punishment
►Physical Abuse

Hawthorne Effect

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Definition

A widely accepted definition of the Hawthorne Effect refers to the effects of subjects' awareness of their evaluation as participants of a research study [4]. Other definitions include the importance of changes in the work

environment (e.g., lighting, rest breaks) while some focus on the resilience of the change in performance. Common variables that can be found in the Hawthorne effect definitions include participants' interpretation of workplace changes being implemented for their benefit, reference to the response of subjects to change, and the presence of reduced worker boredom [2]. Researchers who support the phenomenon that is known as the Hawthorne Effect have been criticized for failing to differentiate this concept from subject reactivity to experimental conditions or from the issue of confounding variables in experimental research. Indeed, the original research itself has been deemed methodologically flawed and insufficient to suggest such an effect by some [5].

Description

The Hawthorne studies have been called the "single most important investigation of the human dimensions of industrial relations in the early twentieth century" ([1], p. 55). The Hawthorne studies, from which the concept of a Hawthorne effect originated, occurred between 1924 and 1933. The name "Hawthorne" was taken from the site of the original study that began in 1927: the Hawthorne plant of the Western Electric Company in Chicago, Illinois [5]. The seven studies that took place at Hawthorne were conducted by employees at the Industrial Research Division of the plant. These studies were then interpreted by a group of external experts that included Elton Mayo of the Harvard Business School as well as biology and public health professor Clair Turner from the Massachusetts Institute of Technology [1]. The participants of the Hawthorne studies were uneducated, low-income women who worked various jobs at the factory [4]. Reports of the Hawthorne studies are contained in Mayo's 1933 [3] book *The Human Problems of an Industrial Civilization* and Roethlisberger and Dickson's 1939 [6] book *Management and the Worker.*

The three illumination experiments are the most frequently cited experiments from the original research that are used to support the Hawthorne Effect. Conducted between 1924 and 1927, these three experiments involved the manipulation of illumination levels to investigate the relationship between lighting and worker productivity. These experiments were first conducted using workers from three different departments who were engaged in three different kinds of work tasks. Noting the flawed methodology of this experiment, the researchers then used two groups of participants from one department only. The first group of participants worked under the normal illumination conditions of the factory. The second group of participants worked under various intensities of natural and artificial illumination. As the researchers received results from the second study that did not support their hypotheses, a final experiment essentially recreated the second experiment with the exception of the use of artificial light only. The researchers involved in the illumination experiments expected to find that groups who received progressively more illumination would become more productive. Although this hypothesis was supported by the research, the illumination experiments yielded results that illustrated increased productivity among groups who did not receive increased levels of illumination. These experiments also revealed that increased productivity could occur among groups whose illumination was progressively decreased. Overall, the results from the illumination experiments suggested that the relationship between illumination and productivity must be affected by other variables, including the notion that participation in a research study could increase worker productivity.

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Hb

►Hemoglobin

Head Injury

►Brain Damage
►Traumatic Brain Injury

Head Start

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Synonyms

Pre-school programs; Project head start; War on poverty

Definition

Head Start is a federally funded program that provides a variety of services (i.e. educational, social, health, nutritional) and stimulating academic environments for economically disadvantaged children with a goal of enhancing school readiness.

Description

Head Start was initiated as part of the war on poverty in 1965. The program was created in an effort to address the needs of children in economically deprived settings. Head Start was initially started as an 8-week program, but now includes full-day options and services throughout the entire calendar year. Head Start promotes school readiness for children of economically disadvantaged families by providing academic and social-related services to families and children. These services are often based on the information gathered from a needs assessment. Furthermore, the goal of Head Start is to provide a stimulating learning environment in an effort to target several aspects of the child's educational development including: "language, literacy, mathematics, science, social and emotional functioning, creative arts, physical skills, and approaches to learning" (Head Start Act as Amended). Services are provided through center-based, home-based, or combined (center and home-based) programs. In addition to these services, Head Start provides assistance for children transitioning into elementary school by providing schools with records on the student as well as connecting the family to appropriate professionals and services within a school.

Since the inception of Head Start, 25 million children have received service through the program. In 2007, 908,412 students were enrolled in the Head Start program. Children participating in Head Start come from diverse backgrounds. During fiscal year 2007, 39.7% of the children in the program were white, 30.1% Black/African American, 18.8% unspecified other, 4.9% bi-racial/multi-racial, 4% American Indian/Alaska Native, 1.7% Asian, and 0.8% Hawaiian/ Pacific Islander. Furthermore, 12.2% of the children enrolled in Head Start are diagnosed with a disability, such as "mental retardation, health impairments, visual handicaps, hearing impairments emotional disturbance, speech and language impairments, orthopedic handicaps, and learning disabilities (Head Start Fact Sheet, 2008)." The government spends approximately $7,326 for each child enrolled in the program. Head Start often collaborates with several community agencies and businesses in providing additional services.

There have been several studies that have noted the benefits of participation in Head Start programs, as well as several studies questioning its effectiveness. Based on a comprehensive literature review, Love and colleagues [4] note that there was evidence to support the effectiveness of the program. Results from the Head Start Impact Study indicate significant improvements in school readiness skills of first grade children, including cognitive, social, and emotional skills as well as improvements in parenting practices. In addition, Head Start had a statistically significant effect on children's pre-reading, pre-writing, vocabulary, and parent reported literacy skills. These results were found for children who entered the program as early as 3-years of age. Head Start was also found to remediate problem behaviors and improve social-emotional functioning for children who entered at an early age.

Children who were enrolled in the program at 3- or 4- years old also displayed improvement in their physical health and access to health care. Head Start had an impact on access to health care for children who entered the program at 4 years old. Furthermore, the study found that Head Start had an impact on parenting practices. For children who entered the program at age 3, parents of these children demonstrated an increased use of educational activities within the household and a decreased amount of physical punishment. The study found that Head Start had an impact on the parents of children who entered the program at age 4 demonstrated by an increase of educational activities within the household and a decreased amount of physical punishment. Although there is evidence demonstrating benefits for children who recently completed a Head Start program, there have been fewer positive studies suggesting its long term benefits. Aughinbaugh [1] found no evidence supporting the long-term effectiveness of Head Start related to grade retention and math ability.

Head Start is a federally funded program that strives to meet the school readiness needs of children in poverty. Several research studies have examined and continue to examine the effectiveness of the program. There are Head Start centers located within all fifty states and several U.S. territories. Furthermore, Head Start makes special efforts to meet the needs of specific populations who are deemed at risk for educational and social difficulties in school.

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Head Trauma

►Traumatic Brain Injury

Health

►Nutrition

Health Psychology

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Synonyms

Child health psychology; Clinical health psychology; Critical health psychology; Occupational health psychology; Public health psychology

Definition

Health Psychology is a dynamic theoretical and applied psychological discipline founded almost 30 years ago, and emerged as the science of the psychological foundations of health, illness and health care [3]. The diversity that characterizes this rapidly expanding field of psychology is reflected by the

- educational, scientific, and professional contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, the identification of etiologic and diagnostic correlates of health, illness, and related dysfunction, and the improvement of the health care system and health policy formation [5].

Description

Health psychology applies psychological theories and methodology to identify the psychosocial and developmental factors underlying physical illness and enactment of health-related behaviors. Health psychology has made substantial contributions to the understanding of health maintenance and illness prevention and a kaleidoscope of other health-related issues, such as coping with chronic illness, adherence to medication, effective doctor–patient communication, health education and promotion via the development and application of effective interventions [8, 9].

Relevance to Childhood Development

Child health psychology emerged as an interdisciplinary area, where health-related and developmental perspectives are jointly considered for the improvement of child health care. According to Drotar et al. [2] child health psychology focuses on the "*behavioral* aspects of children's health and illness," hence the integration of developmental issues within the spectrum of health-related research. Accident-relevant behaviors, child physical abuse, substance abuse in the family, chronic pediatric pain and illness, child stress, and children's reactions to medical procedures are only few of the key areas of interest in child health psychology [2, 4].

Childhood is considered to be a crucial developmental stage where illness prevention and health promotion may be particularly fruitful especially at the level of attitude formation [10, 11].

A developmental perspective to health promotion may increase the relevance and effectiveness of health education targeting children and their caregivers. Usually, child health promotion primarily targets the child caregiver (e.g., parents) on health-related issues concerning child wellbeing (e.g., [7]), and to a lesser extent it targets children themselves. The latter typically involves the use of effective, creative, and innovative methods (e.g., theater play; see [6]) to attract children's attention by taking into account their age, physical condition (e.g., obesity, medical condition), and the setting where promotion takes place (e.g., schools).

The child health professional can foster health promotion in children and families by using effective teaching strategies in various settings where learning occurs and is

encouraged (e.g., at schools; in health clinics etc.). The health educator's skills and techniques used for this purpose are as critical as the consideration of socio-cultural factors and their role in health communication and persuasion. Hence, "culturally effective" or "community-relevant" health promotion would be essential. The role of child health professionals is not limited to a sterile "lecture-type" health education. On the contrary, it involves interaction with children and their caregivers/family and discussion on issues that are relevant to health maintenance and prevention of illness [1]. These are important prerequisites for the development of effective health interventions inspired by working with children and families in applied and clinical settings.

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Heart Disease

►Cardiac Disorders

Heave

►Purging

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Life Dates

July 1904–August 1985

Introduction

Hebb is an internationally renowned neurophysiologist most who developed the concept of the Hebbian synapse and the Hebbian learning rule [1]. His contributions to the understanding of human learning and memory continue to have an impact on most areas of psychological thought and practice.

Educational Information

The eldest son of four children Donald Olding Hebb was a born in Chester, Nova Scotia in Canada [1]. Hebb initially pursued a career as a novelist and studied in the Faculty of Arts at Dalhousie University in Halifax where he majored in English. However, this ambition did not meet with success [1].

Hebb then motivated by the works of Sigmund Freud and went on to study as a graduate student in psychology at McGill University. In 1931 he wrote his M.A. thesis entitled *Conditioned and Unconditioned Reflexes and Inhibition* which argued that skeletal reflexes were due to cellular learning. This thesis later formed the basis for his work on the Hebb synapse [1].

Hebb became interested in physiological aspects of psychology and went on to study for a Ph.D. in this area with Lashley at the University of Chicago. Hebb's Ph.D. thesis topic was "*The problem of spatial orientation and place learning*". However, prior to completing the Ph.D. Lashley accepted a position at Harvard University and Hebb also transferred to Harvard University to continue his work with Lashley. However, he had to change his thesis topic to the study of vision in rats reared in darkness. He was awarded his Ph.D in 1936 [1].

In 1937 Hebb began his post doctoral work with Wilder Penfield at Montreal Neurological Institute [1]. At this

point Hebb began to assemble test batteries based on his observation that lesions in different areas of the brain led to different disabilities. Therefore, different aspects of strengths and weakness should be assessed rather than overall intellectual change [1]. During this process he developed two new tests 1) the verbal Adult Comprehension Test, 2) The non verbal Picture Anomaly Test [1].

Accomplishments

Hebb has been a leading neuroscientist his work has influenced most aspects of psychological thought [2]. He took a professorship of McGill University in 1947 and went on to become Chancellor from 1970–1974 and a Professor Emeritus in 1978 [1]. Under his guidance McGill University became a leading research center for physiological research [1]. Hebb became president of the Canadian Psychological Association (CPA) in 1952 and the American Psychological Association (APA) in 1961 [1].

During his life his contributions to psychology were recognized by numerous awards including: a distinguished scientific contributions award from the APA in 1961, an award from the Association for Research in Nervous Mental Disorders 1962. Nominated for the Nobel Prize in 1965, awarded the gold medal from the APA in 1974, awarded Distinguished Scientific Contribution Award from the Society for Research in Child Development in 1979 and the CPA Distinguished Scientific Contribution Award in 1980 [1]. Hebb was posthumously inducted into the Canadian Medical Hall of Fame in October 2003 [1].

Contributions

Hebb is most well known for his work on memory and learning [2]. The Hebbian synapse and the Hebbian learning rule form the bases of multiple memory systems and synaptic plasticity [1, 2]. Hebb was also involved with identified that intelligence is not exclusively innate and that early environmental influence during a child's development is crucial in determining adult intelligence [1]. Modern computer models of the brain are based on Hebbs ideas of synapse and cell assembly [2].

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HELLP Pregnancy Syndrome

►HELLP Syndrome

HELLP Syndrome

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Synonyms

HELLP pregnancy syndrome

Definition

HELLP syndrome is a life-threatening obstetric complication usually considered to be a variant of pre-eclampsia involving a combination of liver and blood disorders. Specifically, HELLP is an abbreviation of the main symptoms of this syndrome: H stands for Hemolytic anemia (Hemolytic anemia is the breaking down of red blood cells.), EL stands for Elevated Liver enzymes (indicating liver damage) and LP stands for Low Platelet count (leading to a bleeding tendency).

Description

Epidemiology

The incidence of HELLP syndrome is reported as 0.17–0.85% of all pregnancies and develops in 4–12% of women with pre-eclampsia or eclampsia [8, 13, 14]. When pre-eclampsia is not present, diagnosis of the syndrome is often delayed. The syndrome presents antepartum in 69% of patients and postpartum in 31% of patients [4]. With postpartum presentation, the onset is typically within the first 48 h after delivery; however, signs and symptoms may not become apparent until as long as 7 days after delivery.

HELLP syndrome usually begins on average between 32 and 34 weeks but rare cases have been reported as early as 23 weeks gestation [8]. Although up to 3% of HELLP cases result in maternal mortality and stillbirths occur in up to 20% of cases, the outcome for mothers with HELLP syndrome is generally good [6].

Etiology

The exact cause of HELLP syndrome is unknown, but general activation of the coagulation cascade

(Coagulation cascade is the sequence of biochemical activities, involving clotting factors that stop bleeding by forming a clot.) is considered the main underlying problem [7]. Fibrin (Fibrin is an insoluble protein that is essential to clotting of blood, formed from fibrinogen by action of thrombin.) forms cross linked networks in the small blood vessels. This leads to a microangiopathic hemolytic anemia (Microangiopathic hemolytic anemia is a disorder in which narrowing or obstruction of small blood vessels results in distortion and fragmentation of cells.): the mesh causes destruction of red blood cells as if they were being forced through a strainer [7]. As the liver appears to be the main site of this process, downstream liver cells suffer ischemia (Periportal necrosis is the necrosis of liver cells localized around the portal vein. It is usually associated with ingested toxins.), leading to periportal necrosis (Disseminated intravascular coagulation is a serious medical condition that develops when the normal balance between bleeding and clotting is disturbed). Other organs can be similarly affected. HELLP syndrome leads to a variant form of disseminated intravascular coagulation (Thrombotic thrombocytopenic purpura is a disease of unknown origin, characterized by abnormally low levels of platelets in the blood, the formation of blood clots in the arterioles and capillaries of many organs, and neurological damage.), leading to paradoxical bleeding, which can make emergency surgery a serious challenge. Some conditions may increase the risk of developing HELLP syndrome, including preeclampsia during pregnancy and previous pregnancy with HELLP syndrome.

Features

Symptoms of HELLP syndrome are progressive nausea and vomiting, upper abdominal pain, severe headaches, visual disturbance, easy bruising, swollen hands and feet. Tenderness in the upper right abdomen just below the ribs results from enlargement and inflammation of the liver [1, 3]. Edema may also occur but its absence does not exclude HELLP syndrome. Arterial hypertension is also a diagnostic requirement, but it may be mild. Rupture of the liver capsule and a resultant hematoma may also occur. Disseminated intravascular coagulation is also seen in about 20% of all women with HELLP syndrome [10], and in 84% when HELLP syndrome is complicated by acute renal failure [9].

Due to the fact that HELLP syndrome may resemble other medical conditions, such as thrombotic thrombocytopenic purpura (Acute exacerbation of systemic lupus erythematosus is a chronic generalized connective tissue disorder marked by skin eruptions, arthralgia, arthritis, leukopenia, anemia, visceral lesions, neurologic manifestations, lymphadenopathy, fever, and other constitutional symptoms.), acute exacerbation of systemic lupus erythematosus (Acute exacerbation of systemic lupus erythematosus is a chronic generalized connective tissue disorder marked by skin eruptions, arthralgia, arthritis, leukopenia, anemia, visceral lesions, neurologic manifestations, lymphadenopathy, fever, and other constitutional symptoms.) and pregnancy-induced hypertension, patients who present with symptoms of HELLP syndrome can be misdiagnosed in the early stages increasing the risk of liver failure and morbidity [11].

Treatment

Early diagnosis is critical because the morbidity and mortality rates associated with the syndrome have been reported to be as high as 25% [5]. The mortality rate among babies born to mothers with HELLP syndrome varies and depends mainly on gestation and birth weight.

In the past the only treatment advocated was to deliver the baby immediately [2]. This is due to the fact that as the liver deteriorates rapidly, hemorrhaging into the liver and from the site of the placenta can threaten the life of mother and baby. Permanent liver damage may result if delivery of the baby is delayed. Fortunately, the majority of babies born to HELLP syndrome mothers do very well, especially if weighing over 2 lbs at birth. Babies less than 2 lbs in weight, face serious problems and complications due to prematurity. Depending on the estimated gestational age and the condition of the mother and fetus a more conservative treatment could be administered [2]. Blood transfusions may be conducted for severe anemia and low platelets, magnesium sulfate may be administered to prevent seizures [3], antihypertensive medications may be given to reduce blood pressure, corticosteroids may be prescribed to help mature the lungs of the fetus [12] and then if HELLP syndrome worsens and endangers the well-being of the mother or fetus, then an early delivery may be necessary.

Patients with HELLP syndrome may be eligible for conservative management if hypertension is controlled at less than 160/110 mmHg, oliguria responds to fluid management and elevated liver function values are not associated with right upper quadrant or epigastric pain [5]. One study found that pregnancy was prolonged by an average of 15 days when conservative management (i.e., bed rest, fluids and close observation) was used in patients who were at less than 32 weeks of gestation. Maternal morbidity was not increased. For infants, the prolongation of pregnancy translated into less time in the neonatal intensive care unit, a decreased incidence of necrotizing enterocolitis and a decreased incidence of respiratory distress syndrome. Following HELLP syndrome, future pregnancies are at an increased risk and so most mothers will be advised to avoid pregnancy again.

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Helping Behavior

►Prosocial Behavior

Hematinoglobulin

►Hemoglobin

Hemidecortication

►Hemispherectomy

Hemispherectomy

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Synonyms

Hemidecortication

Definition

A hemispherectomy is a surgical procedure to remove one of the two hemispheres of the cerebrum, which together make up the majority of the ►brain's tissue [1]. The surgery takes one of two forms: Anatomical hemispherectomies involve the complete removal of a cerebral hemisphere while functional hemispherectomies involve the selective removal of parts of a cerebral hemisphere and severing the corpus callosum such that the afflicted hemisphere in more or less left intact but is functionally disconnected from the rest of the brain [1]. Hemispherectomies are typically performed to treat intractable epilepsy [3].

While the majority of hemispherectomies are performed in the adolescent years, some are performed in the first year of life, before the acquisition of speech [2]. The outcome following a hemispherectomy in early infancy depends on which hemisphere is involved, supporting the conclusion that the cerebral hemispheres have considerable degree of specialization of function, even early in life [2]. The specific outcomes following a hemispherectomy, to the extent that such results can be summarized briefly, are summarized in Table 1.

To elaborate on some of the data presented above, left hemispherectomies, in contrast to right

Hemispherectomy. Table 1 Post-Hemispherectomy Outcomes

Behavioral measures	Left hemisphere removal	Right hemisphere removal
Measures of intelligence	Low but normal	Low but normal
Measures of language		
Simple	Normal	Normal
Complex	Poor	Normal
Measures of visuospatial abilities		
Simple	Normal	Normal
Complex	Normal	Poor

Adapted from [2]

hemispherectomies, result in deficits in comprehending spoken language when the meaning in the utterance is a function of complex syntax of the utterance, especially if the spoken sentence contains an error (as in "The tall guard wasn't shot by the armed robber"). Similarly, a left hemidecortication produces deficits in understanding the implied meaning of a spoken sentence, in using the information in a sentence to identify a missing pronoun, and in judging how the words in a sentence are inter-related [2]. Both hemispheres can function to enable a person to comprehend word meanings and both will allow a person to produces lists of words to name things. In tasks involving a search for words through the use of different cues, the left hemisphere provides a person with some advantages. While either hemispheres can arrive at a word to name an object based on its picture or from its description, only the left hemisphere can identify a word based on a prompt such as "It rhymes with. . ."; the right hemisphere alone does not function to allow a person to respond correctly to such a prompt. Both hemispheres enable a person to engage in higher-order reading comprehension but, the left hemisphere gives a person superior ability in spelling and reading words that are novel to the person and to engage in more fluent reading [2]. The left hemisphere also enables a person to read passages of prose with greater accuracy and fluency and with fewer violations or errors of the semantic content and syntax of the sentences; the superior ability given with an intact left hemisphere was summarized as the ability to use and understand the implicit and explicit rules of the use of language. The right hemisphere, however, enables a person to have better performance of a task involving learning an association between symbols and nonsense syllables [2].

In terms of visuospatial ability, individuals who had undergone right hemispherectomies had normal abilities on simple measures such as drawing an object, these individuals exhibited significant deficits on more complex measures such as reading a map or solving a maze task [2].

In summary, each cerebral hemisphere can take on some of the opposite hemisphere's abilities and functions if the opposite hemisphere is removed, but neither hemisphere can totally fulfill all of the absent hemisphere's roles [2]. With very few exceptions, individuals who have undergone a hemidecortication evidence below-average or in best case outcomes, average intellectual ability and the individual's competence on assessments of the missing hemisphere's typical functions is below normal [4].

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Hemispheres of the Brain

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Synonyms

Brain hemispheres; Cerebral hemispheres

Definition

The hemispheres of the brain refer to the two relatively symmetrical halves of the forebrain that lie on the right and left.

Description

The hemispheres of the brain refer to the two relatively symmetrical halves of the Forebrain that are topographically divided by the Longitudinal Fissure [1, 3]. While they appear divided on the surface, the hemispheres are connected by both the Corpus Callosum and the Anterior Commissure so to allow for proper neuronal communication between the hemispheres [2]. It is these connections that provide the foundation of the brain's mirror-image structure. Specifically, these noted interhemispheric connections join contralateral points that are similar in functionality [2]. For example, those points relating to the movement of the right arm will present with connections to those points, similar in hemispheric locality, that relate to the movement of the left arm. However, in terms of functional regulation, the hemispheres of the Forebrain demonstrate contralateral control such that motor and sensory functioning of the right side of the body is modulated by the left hemisphere and vice versa, the motor and sensory functioning of the left side of the body is modulated by the right hemisphere.

The subtle asymmetry of the hemispheres of the brain is largely related to their differences in morphology and physiology [4]. While the right hemisphere in most people presents as both larger and heavier, the left

hemisphere tends to be more dense [4]. The greater density of the left likely corresponds with a more intricate association circuitry of this hemisphere compared to the right secondary to the lateralization of various higher-order functions to this hemisphere. In terms of lateralization, this refers to a functional dominance of one hemisphere over the other, in which one is more responsible or entirely responsible for control of a function in comparison to the other. For example, the left hemisphere is generally dominant as language and various aspects of verbal processing are usually lateralized to this side, which are higher-order processes. As a result, there is likely a great reliance on more intricate neuronal networking and thus the left hemisphere presents with greater density [4]. For more information on the lateralization of the hemispheres, please see *Hemispheres of the Brain, Lateralization of*.

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Hemispheres of the Brain, Lateralization of

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Synonyms

Cerebral dominance; Cerebral lateralization; Hemispheric dominance; Hemispheric lateralization

Definition

Lateralization of the brain hemispheres refers to a functional dominance of one hemisphere over the other, in which one is more responsible or entirely responsible for control of a function in comparison to the other.

Description

In addition to a multitude of other defining features, the brain Cerebrum is divided into two relatively symmetrical halves referred to as the hemispheres of the brain. Although they are relatively similar in appearance, each hemisphere is entrusted with the modulation of different functions. It is this functional asymmetry that is the hallmark of lateralization. Specifically, lateralization of the brain hemispheres refers to a functional dominance of one hemisphere over the other, in which one is more responsible or entirely responsible for control of a function in comparison to the other. This can be depicted in two general ways. First, in regards to sensory and motor functioning the hemispheres of the brain present with a contralateral pattern of control in which the left hemisphere is involved in the functioning of the right and the right hemisphere is involved in the functioning of the left [17]. Beyond this more basic aspect of lateralization, empirical evidence has demonstrated further lateralization of hemispheric functioning along the lines of higher-order cognitive functions. A general way of conceptualizing this is in regarding the left hemisphere as more prominently involved in language and other verbal processes and the right hemisphere as more involve in visual-spatial processing and other non-verbal abilities [18]. This breakdown represents the basis for the idea of left hemisphere dominance. In regards to this latter idea, dominance is determined by which hemisphere houses language. While, as suggested above, left hemisphere dominance holds true for the vast majority of individuals, there are some who present with cross-dominance as well as those who present with reverse-dominance.

Beyond the more simplistic differentiation of verbal versus non-verbal/ visual in regards to lateralization of the hemispheres, prior research has demonstrated greater specifics along these lines. Dean and Anderson [8] provided a summary table of the various lateralized functions as determined by empirical evidence that was revised by Davis and Dean [6] and then Noggle, Davis, and Barisa [23]. Based on these empirical summaries, functions that have been demonstrated as largely lateralized to the right hemisphere include: Simultaneous Processing [31]; Holistic Processing [9, 31]; Visual/nonverbal Processing [27, 31]; Imagery [28]; Spatial reasoning [25, 31]; Depth perception [4]; Melodic perception [29]; Tactile perception [3, 5]; Nonverbal sound recognition [21]; Motor integration [16], Visual constructive performance [24]; Pattern recognition [10]; Language Pragmatics [1]; Nonverbal memory [33]; and Face recognition [14, 22].

In comparison, functions that have been demonstrated as largely lateralized to the left hemisphere include: Sequential Processing [32]; Temporal Processing [20]; Analytic Processing [10]; Speech [2]; General language/ Verbal Skills [11, 12, 30]; Calculation/Arithmetic [10, 26]; Abstract verbal thought [12]; Writing (composition)

[15, 31]; Complex motor functions [9]; Body orientation [13]; Vigilance [9]; Verbal paired associates [9]; Short-term verbal recall [16]; Abstract and concrete words [19, 28]; Verbal mediation/rehearsal [7, 28]; and Learning complex motor function [9].

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Hemispheric Differences

►Split Brain

Hemispheric Dominance

►Hemispheres of the Brain, Lateralization of

Hemispheric Lateralization

►Hemispheres of the Brain, Lateralization of

Hemoglobin

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Synonyms

Deoxyhemoglobin; Haemoglobin; Hb; Hematinoglobulin; Hemoprotein; Metalloprotein; Oxyhemoglobin

Definition

An iron-containing protein in red blood cells that transports oxygen from the lungs through the bloodstream for use by the body in energy-generating metabolic processes.

Description

Hemoglobin molecules are found in *erythrocytes*, or red blood cells. Hemoglobin molecules contain four subunits, each comprising an iron-containing *heme* group folded within protein chains known as *globin*. The reddish color of the heme gives blood its characteristic color; globin peptide chains are colorless. Since each heme group can bind one oxygen molecule for transport, each hemoglobin molecule can transport four oxygen molecules into the peripheral tissues of the body, where they are used in aerobic metabolic processes. When in oxygen-rich environments, the hemoglobin molecules change their structures, "unfolding" slightly to facilitate binding between the heme and oxygen molecules. Once the oxygen molecules have been released into tissue, the hemoglobin molecules again reconfigure, making the heme groups less accessible so that they will not rebind to the released oxygen molecules. The hemoglobin molecules then transport carbon dioxide molecules from peripheral tissue back to the lungs to be released via exhalation. Hemoglobin molecules that are actively involved in transporting oxygen in the bloodstream are known as *oxyhemoglobin* molecules; non-oxygen-carrying hemoglobin molecules are sometimes referred to as *deoxyhemoglobin*. In addition to their role in oxygen transport, hemoglobin molecules serve a buffering function within red blood cells, helping to maintain a pH level of approximately 7.4 in the bloodstream.

Disorders that affect hemoglobin production, structure, or function are known as *hemoglobinopathies*. Most hemoglobinopathies are genetic in origin; this category includes diseases such as *sickle cell anemia*, in which structural abnormalities in globin chains are present, and the *thalassemias*, in which rate of globin synthesis is affected. Other forms of hemoglobinopathy are acquired, rather than genetic. One such hemoglobinopathy is carbon monoxide (CO) poisoning. CO molecules bind over 200 times more strongly to hemoglobin than do oxygen molecules; therefore, exposure to even relatively low concentrations of CO can result in CO molecules binding to hemoglobin for transport throughout the body at much higher rates than oxygen molecules, leading to significant (and potentially fatal) oxygen deprivation.

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Hemophilia

Synonyms

Blood-clotting disorder; Christmas disease; Factor IX deficiency; Factor VIII deficiency

Definition

A rare hereditary disorder of the blood-clotting system, where your blood does not clot normally.

Description

There are several types of blood-clotting diseases, and they are all lifelong medical conditions. With hemophilia small cuts bleed longer than usual; however, are not as great a concern as deeper cuts and internal bleeding that are more life threatening. Fortunately, with appropriate treatment

and good self-care many individuals with hemophilia can live active and healthy lives. Hemophilia is predominantly found in males (with rare exceptions), and severity varies depending on the amount of clot-forming proteins, in the body, called clotting factors. There are several types of clotting factors that work in conjunction with platelets (small blood fragments that form bone marrow). Clotting factors help platelets stick together to plug cuts at the site of injury to stop bleeding.

There are two main types of hemophilia, hemophilia A and hemophilia B. Individuals with hemophilia A are missing or have low levels of clotting factor VIII. This is the more common form of hemophilia, affecting 9 out of 10 people. Also, about 7 out of 10 people who have hemophilia A have a severe presentation of the disorder. On the other hand, hemophilia B individuals lack or have low levels of clotting factor IX. Although hemophilia is a predominantly hereditary disorder, in rare cases it can be acquired due to the formation of antibodies to clotting factors. The main treatment for hemophilia is injecting missing clotting factors into the bloodstream.

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Hemoprotein

►Hemoglobin

Hereditary Dystopic Lipidosis

►Fabry Syndrome

Heredity

►Heritability

Heritability

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Synonyms

Heredity

Definition

Heritability is the proportion of phenotypic variance that can be accounted for by genetic differences among individuals [5]. There are several variations in the definitions of heritability, depending on the field it is used in and depending on the author's stance. For example, certain authors emphasize that heritability and heredity are not the same, although they have been used interchangeably in certain texts [1].

Description

The term has been used since the 19th century, with the meaning we attribute today described by Jay Lush in 1936. Lush was an Iowa State College professor of animal breeding, and focused on breeding animals with certain traits. He described *heritability* as the proportion of phenotypic variance (i.e., physical traits) that can be accounted for by genes. Initially, the concept was used to help plant and animal breeders predict their selection. Lush also described two types of heritability: *broad heritability* and *narrow heritability. Broad heritability* entails the entire genotype, including genes that interact non-additively. *Narrow heritability* includes only additive genetic effects, which are of interest to plant and animal breeders.

Lush also established that a heritability estimate would be useful, which provides a numeric index of how much of the observed variation in physical characteristics is due to genetic factors. In behavioral genetics, heritability calculations are done by doubling the reared-together identical-fraternal correlation differences, where there is an assumption that genetic makeup and environment do not interact, although it is known this isn't true. The statistical calculations of heritability estimates are thought to be biased and methodologically inaccurate.

Heritability and Psychiatric Disorders

Past research on heritability has focused largely on IQ and psychiatric disorders. For example, major twin studies revealed that heritability of schizophrenia is somewhere between 0.6 and 0.9, where the heritability can range from

no genetic factors playing a role in developing the disease (0.0) to where genes carry the sole responsibility for a disease (1.0) [3].

Other psychiatric disorders, such as autism, bipolar affective disorder, and ADHD are thought to be highly influenced by genetics, with heritabilities between 60 and 90% (Lerner, 2006), while antisocial behaviors have between 41 and 50% heritability, and Alzheimer's disease has 40–80%.

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Hermaphrodite

►Androgyny

Hermaphroditic

►Androgyny

Heteronomous

►Piaget's Theory of Moral Development

Heterosexism

►Homophobia
►Sexual Prejudice

Heterosexual Identity

►Sexual Identity

Hierarchical Linear Modeling

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Synonyms

Mixed models; Multilevel modeling; Random coefficient models

Definition

Hierarchical Linear Modeling (HLM) is a statistical technique that allows used for analyzing data in a clustered or "nested" structure, in which lower-level units of analysis are nested within higher-level units of analysis. For example, students are nested within classrooms, which are nested within schools.

Description

Hierarchical, or nested, data structures are common in many areas of child development research. Specifically, students exist within a hierarchical social structure that can include family, peer group, classroom, grade level, school, school district, state, and country. Hierarchical, or nested, data present several problems for analysis. In particular, individuals from the same classroom or school tend to share certain characteristics (i.e., socioeconomic status, demographics, background) and observations based on these individuals are not fully independent. These individuals tend to be more similar than people randomly sampled from the entire population and thus are not fully independent. However, most analytic techniques require independence of observations as a primary assumption for the analysis. When data is organized in this manner the fundamental assumption of regression analysis that implies that observations should be independent is violated. Since this assumption is violated in the presence of hierarchical data, ordinary least squares regression (OLS) produces standard errors that are too small. When some form of multilevel modeling is not used this fact is ignored and may severely inhibit the validity of a study's results. In order to accomplish the use of taking into account individual scores

adjusted for group differences as well as prediction of group scores adjusted for individual differences within groups, HLM allows intercepts (means) and slopes (independent variable-dependent variable relationship) to vary between higher level units. For example, the relationship between a student's personal competency (independent variable) and reading achievement (dependent variable) is allowed to vary between classrooms. This variability is modeled by treating group intercepts and slopes as dependent variables in the next level of analysis. By doing this it decreases the Type I error rate and facilitates a more accurate representation of outcomes.

Conducting a study that utilizes HLM techniques generally requires the use of specialized software. Commercially available software for this procedure includes: HLM, SAS Proc Mixed, MLwiN, and Mplus.

Relevance to Childhood Development

The study of child development is inherently a multilevel field. The term multilevel refers to a nested membership relation among units in a system. In the field of child development, students are nested in teacher classrooms, classrooms nested within schools, and schools grouped within neighborhoods. In as much as researchers are concerned with improving the outcomes of children, the study of these subjects cannot be done appropriately without taking into account their school, neighborhood, and family environments concurrently. Specifically, the development of appropriate interventions, home-school collaborations, and gathering appropriate assessment data must recognize and acknowledge the nested nature of the target child's circumstance. To account for the clustering of children within their environments, researchers can use HLM procedures to appropriately account for nesting hierarchies.

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Hindbrain

▶Brain Stem

Hippocampus

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Definition

The hippocampus is an anatomical brain structure that is part of the hippocampal formation, which also includes the dentate gyrus and subiculum. The hippocampus is located in the subcortical medial and ventral areas of the temporal lobe, and appears to play a role in socioemotional behavior, attention, and memory and learning, as well as locomotor activity.

Description

The hippocampus, along with other structures such as the primary sensory and motor cortex, tends to be one of the most active areas of the brain in newborns. The hippocampus is one of the structures containing the highest concentrations of *N*-methyl-D-aspartate (NMDA) receptors in the brain, making it more vulnerable to dysfunctions, neural damage due to anoxia and ischemia, as well as dysfunctions associated with psychiatric disorders. For example, it is believed to play a major role in neurodevelopmental disorders involving dysregulation of dopaminergic systems, such as schizophrenia.

Hippocampal lesions can induce hyperactivity and distractibility, possibly contributing to attention deficit hyperactivity disorder in children. These lesions can also create perseveration – with the result that the child repeats the same response over and over, even when the response is not instrumental in achieving a goal. Lesions to the hippocampal formation also may interfere with learning and habituation, resulting in longer time to realize that repetitive stimuli are familiar. With regard to memory, lesions lead to amnesia, and also affect stimuli from all modalities, thus resulting in a deficit in the consolidation of explicitly recalled memory. Lesions to the left hippocampal formation lead to problems with verbal memory while right side lesions are associated with spatial memory deficits. Some studies also show a significant shrinkage of the hippocampus in adults diagnosed with Post Traumatic Stress Disorder, however this has not been noted in children with the same diagnosis.

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Histories

►Personal Narratives

Hold Fast to Another's View

►Identity Foreclosure

Holistic Health

►Humanistic Therapy

Holophrases

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Synonyms

Single word utterance

Definition

Term used in the study of language acquisition to refer to the use of a single word to express a complex idea.

Description

Derived from a usage based theory of linguistic acquisition, holophrases are single word utterances used by children to convey an intention similar to that of the adult expression it derives. The majority of holophrases are conventional and stable and children learning to speak use their holophrases to a achieve variety of goals, regardless of the language being learned.

Examples of holophrases and their uses are outlined below:

- Request or indicate the existence of object (e.g., by naming them with a requestive or neutral intonation)
- Request or describe the reoccurrence of objects or events (e.g., *More, Again, Another*)
- Request or describe dynamic events involving objects (e.g., as described by *Up, Down, On, Off, In, Out, Open, Close*)
- Request or describe the action of people (e.g., *Eat, Kick, Ride, Draw*)
- Comment on the location of objects and people (e.g., *Here, Outside*)
- Ask some basic questions (*What's-that? or Where-go?*)
- Attribute a property to an object (e.g., *Pretty, or Wet*)
- Use performatives to mark specific social events and situations (e.g., *Hi, Bye, Thank you, and No*)

Relevance to Childhood Development

Holophrases form the foundation of a child's early vocabulary and typically develop around the age of 12 months. Children do not attempt to learn isolated words but rather singular constructs that correspond to full sentences used by adults. These individual lexical items appear to have a wide range of communicative intention when accompanied by symbolic gesturing.

Depending on the specific language children are learning and the kinds of discourse in which they participate with adults, children will choose different holophrases to learn to communicate their thoughts and desires. In English, most beginning language learners acquire a number of so called relational words such as *more, gone, up, down, on, and off*, presumably because adults use these words in salient ways to talk about salient events.

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Holtzman Ink Blot Test (HIT)

Definition

A projective personality test created by Wayne Holtzman to correct many of the controversial limitations in the Rorschach Inkblot Test.

Description

The test is made up of two alternate forms of forty-five inkblots; the scoring is based on twenty-two personality-related characteristics. The administration usually takes 50-80 minutes to administer, and scoring can be time-consuming if not scored by a computer. The Holtzman Ink Blot Test is most often used to assess schizophrenia, depression, and head trauma. Note that Holtzman Ink Blot Test should only be administered and interpreted by mental health practitioners who are trained to use this assessment tool.

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Home Situations Questionnaire

►Barkley Home Situations Questionnaire

Homeless Families

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Synonyms

Destitute family; Homeless household; Indigent family

Definition

A homeless family is a family that lacks a consistent, stable residence and is comprised of at least one adult parent or guardian and one or more children under the age of 18 years.

Description

Homelessness is a serious public health problem in the United States. According to 2004 estimates, approximately 2.5–3.5 million Americans will experience homelessness in a given year; of these, approximately 1.35 million are children [8]. Currently, homeless families are among the most rapidly growing sectors of the homeless population. According to a 2007 report, homeless families accounted for approximately half of all homeless persons residing in rural and suburban areas in the United States [14]. Homeless families also tend to remain in sheltered situations for longer periods of time than do single homeless persons, and the adult member of the family is a single woman in 84% of cases [14]. Additionally, the majority of these families have two or more children, with at least one being younger than 6 years of age [14].

Risk Factors for Homelessness

Families who become homeless often do so following a series of traumatic events, including domestic violence, eviction due to inadequate finances, or loss of employment. These families are also more likely than single or unaccompanied adults to seek solace in an emergency shelter immediately following residential living, suggesting that a more abrupt transition to homelessness may occur among families than single adults. In fact, the U.S. Department of Housing and Urban Development reported that 20% of homeless families spent the night immediately preceding the onset of their homeless episode in a residence that they rented or owned [14]. The threat of becoming homeless is a reality for many low-income families, particularly during times of economic hardship. Between 2006 and 2007, requests for housing assistance increased 86% [6]. Unaffordable housing plays a key role in the prevalence of homelessness [10, 11]. Other risk factors for homelessness include being a part of an ethnic minority group, particularly being African American, having low educational attainment, and having minimal work experience [10].

Relevance to Childhood Development

Since the 1980s, the disadvantage experienced by homeless children has become progressively similar to that of low-income housed youth. Significant discrepancies are still noted, however, across multiple domains (e.g., health, cognitive and academic functioning) when these children are compared to the general population [10]. Some of the narrowing of this gap has been attributed to programs that were enacted as a result of the McKinney-Vento Act (►McKinney-Vento Homeless Assistance Act

(PL100-77)) which increased the availability of services to homeless individuals and families [7]. As a direct result of the McKinney-Vento Act, programs supporting education, healthcare, and job training, along with emergency, transitional, and permanent housing have been established. As such, homeless children are likely to exhibit difficulties that are akin to those experienced by age-matched, housed peers who experience a similar level of impoverishment [10].

Owing to the pervasive threats that homeless individuals are exposed to, and the emotionally devastating process of becoming homeless, homelessness has been considered a form of severe and chronic stress [3]. Violence is one of the most prevalent and devastating aspects of homelessness, and it is a common antecedent to homelessness. These families are at increased risk of experiencing direct (e.g., being victimized) and indirect forms of violence (e.g., witnessing violent acts) [1]. For instance, rates of domestic violence are high and aggressive modes of interacting may become customary, while nurturing behaviors are reduced [12]. Not only does violence disrupt interfamily relationships, but it also disturbs a family's social interactions which lead to increased isolation [12]. The combination of these environmental factors prompts fearfulness and anxiety among homeless children.

Homeless children have a greater risk of emotional and physical challenges than their housed peers Exposure to violence and trauma among homeless families has also been linked to an increased incidence of behavioral problems among children [1]. The greater the duration of homelessness, the greater the likelihood that additional trauma may be incurred [16]. The combination of economic hardship and violence plays a role in the level of aggression that is exhibited by homeless children and, correspondingly, the quality of peer interactions these children experience. Homeless children exhibit disruptive behavior at a rate of four times that of their housed peers [15]. Although externalizing behaviors may be adaptive in the lives of homeless youth, these children's relationships are often compromised by peer rejection and, subsequently, social avoidance in the school environment [1]. These children are twice as likely as other youth to go hungry and fall ill, and there is a greater likelihood that they will receive inconsistent healthcare [2, 5]. Furthermore, roughly half of homeless youth experience anxiety and/or depression [2].

The academic performance among homeless children is also hindered. Homeless youth are twice as likely as housed children to repeat a grade and to be diagnosed with a learning disability [2, 9]. One study revealed that approximately 50% of formerly homeless children in New York City had been retained at least one grade. Homeless students also experience more school mobility and higher rates of absenteeism than housed youth which may result in learning gaps and poorer academic performance [9]. These factors contribute to diminished ability to accrue credits and increased likelihood that attendance-related disciplinary action will be imposed [13]. Consequently, homeless youth are at greater risk of having poor school experiences and impoverished peer relationships, thus increasing their risk of dropping out of school in the future. Many homeless youth also demonstrate lower verbal ability than domiciled children [15]. Research has revealed that the functioning of homeless children seems to stratify into two main subgroups which are primarily differentiated by performance on behavioral, adaptive, and achievement measures. In the higher functioning group, emotional and behavioral health, adaptive functioning, and academic achievement, including intelligence, are retained while the lower-functioning portion significant deficits are observed [4]. Thus, the resources and interventions that are appropriate for some homeless families may have limited applicability for others.

Homelessness is also associated with increased family separation, particularly among families that experience chronic homelessness. Maintaining family intactness is further complicated by the fact that many shelters which allow children do not allow adult males (i.e., fathers). Although few studies have addressed the long-term ramifications of homelessness on formerly homeless children, the current body of research indicates that the short-term effects of homelessness are most dramatic and attenuate over time following stability in residence [10].

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Homeless Household

►Homeless Families

Homework

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Definition

Homework consists of those tasks that are assigned to students by teachers with the intention that the tasks be completed during non-school hours. The purpose of homework has generally been identified as providing practice, preparation, and elaboration in relation to what is being taught in the classroom. Homework practices vary considerably across a variety of factors including amount assigned, academic and nonacademic purposes, skill areas covered, amount of student choice, deadline for completion, degree of individualization, and social context for completion of task.

Description

Homework is an educational practice that is solidly entrenched in public and private school systems everywhere. It is often taken for granted by both teachers and parents in that it is assumed that homework is necessary in order for children to make adequate academic progress. In the popular literature discussions about homework are usually centered around issues related to how much and how often homework should be assigned, how long children at different ages should spend on homework, and what parents and children need to do to get through the homework requirements. What is often not addressed is what learning actually occurs during the homework process.

Since the beginning of the twentieth century, public opinions, policies, and practices regarding homework have wavered between support and opposition. Initially, homework was supported as an important means of disciplining children's minds with an emphasis on memorization skills. Later when student initiative and learning was valued more than the ability to memorize facts, homework became less important. As the United States became more concerned about global competitiveness, homework was once again seen as a way for increasing knowledge acquisition. However, that led to concerns regarding the mental health of school children in the United States as homework was seen as placing too much pressure on children. Finally, the recent push for more rigorous state-mandated academic standards has led to another push for the increased use of homework.

Proponents of homework focus on the potential for student improvements in academic skills as well as non-academic skills. Improvements in academic skills are usually measured through student performance on unit exams and standardized tests. Improvements in non-academic skills are more difficult to measure and include factors such as improved attitude toward school, better study habits, improved organization and time-management skills, greater self-discipline, and improved problem-solving skills.

Opponents of homework focus on several areas of concern with the assumption being that any academic and/or nonacademic benefits gained through homework are outweighed by the costs associated. These concerns

and therefore costs include the burden homework places on parents, the stress it causes children, the family conflict it creates, the time it takes away from other activities, and the decrease in interest in learning that it creates.

Those researchers who have analyzed the data available regarding the impact of homework on the learning process have consistently indicated that the studies involved have many methodological flaws and that conclusions are difficult to make [1–4]. Some studies have shown that there are positive effects of homework on achievement but the effect sizes have tended to be very small. Other studies have shown no effect or complex effects in which the positive impact is only for students at certain grade levels or under certain conditions. And, in a few cases, a negative impact has even been shown. These inconsistent results are due to a variety of limitations associated with research in this area. First, much of this research has been correlational and therefore, shows, at best, only an association between homework and achievement and not a causal relationship. Second, most of this research has been done with a small number of subjects and a true experimental design with random assignment to homework and non-homework groups has generally not been possible. Therefore, the results cannot be generalized across a variety of settings. Third, there are a large number of factors related to homework that cannot be controlled through the research process. This includes factors such as knowing how much homework children actually do complete, knowing whether different homework assignments are comparable, and knowing the importance of other home and family factors. Finally, learning in relation to homework has primarily been measured through grades and test scores and long-term effects have rarely been considered. In general, the research has not been able to answer one very important question: If more homework is associated with better grades, can we assume that better grades are a good predictor of a student's ability to retain this knowledge and use it later in life?

Relevance to Childhood Development

The conclusions drawn from reviewing the literature on homework have led researchers to a variety of different recommendations regarding the use of homework as an educational practice to assist children in the learning process. Cooper [2] concluded that doing homework can lead to improved academic achievement but the improvement may be limited especially for younger students and for older students if too much is given. Based on his review of the literature, specific recommendations for how to make homework more effective were identified including considerations regarding the length or frequency of assignments; whether homework assignments should focus on content from that day's lessons or include content from previous lessons or content to prepare for future lessons; whether homework should include both easy and hard material; whether homework should be compulsory or voluntary; whether students should be given choices regarding assignment content; whether teachers should individualize assignments; whether groups of students should be allowed to work on assignments; whether computers should be used; whether study aids should be provided; and how important comments, grading, and rewards are to homework. Marzano et al. [4] also concluded that homework is a strategy that increases student achievement and made similar recommendations for making homework effective. His suggestions included factors related to how much homework should be assigned at different grade levels; how much parents should be involved; how explicit the purpose of homework should be; and whether it should be commented on by the teacher. Both Cooper [2] and Marzano et al. [4] made recommendations regarding homework policies at the classroom and district level.

Buell [1] and Kohn [3] drew different conclusions regarding the research that has been done in the area of homework. They feel that the research does not support the conclusion that current homework practices lead to increases in academic skills. However, they do not recommend completely getting rid of homework without making other changes in educational practices first. They recommend that the practice of homework be re-thought and reform efforts implemented. Buell [1] asserted that since there is little research to support the academic benefits related to homework, the large amounts of homework being assigned are not primarily for the purpose of improving academic skills but instead of instilling character, which is also not supported by the research. He recommends that the amount of homework be reduced in order to provide children with more opportunities to manage and be responsible for their own free time. In addition, he recommends that instead of continuing to assign large amounts of homework, teachers should focus on changes needed in curriculum and instructional practices. He asserts that homework would not be necessary if well-trained teachers were efficient in the use of the school day and if older students were provided with more opportunities for independent work during the school day. Kohn [3] asserted that the problem with current homework practices is that they are often based on basic misconceptions about learning itself. These misconceptions include the ideas that more time automatically leads to better learning; that practice automatically leads

to better understanding; and that just getting a child to complete an activity is enough to ensure learning. Instead, he advocates for focusing more on the quality of the homework rather than the quantity; how well the child understands the activity rather than just if they completed it; and a consideration of the child's needs, goals and attitudes related to that activity. He recommends that teachers and parents question the basic assumption that homework is important and necessary. He would like to see a drop in the number but an increase in the quality of homework assignments. He would also like to see an increase in the amount of choice offered to students in homework assignments.

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Homogeneity of Variance

►Homoscedasticity

Homonegativity

►Sexual Prejudice

Homophobia

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Synonyms

Heterosexism; Sexual prejudice

Definition

Homophobia, from the Greek words *homos* (same) and *phobos* (fear), is a term used to describe the irrational fear of homosexuals or the irrational fear of one's own homosexuality. Homophobia is also used to describe an aversion to homosexuals as well as prejudice toward homosexuals [1].

Description

The term homophobia has undergone an evolution in meaning since George Weinberg first coined the term in the late 1960s. Originally used to describe an irrational fear of homosexuals either in an external fashion by heterosexuals or in a more internalized form among homosexuals, the term is used more commonly today to describe prejudice against homosexuals.

Psychologist Gregory Herek (2000) has opted to replace the term homophobia with the term sexual prejudice as a better way of defining the negative attitudes leveled not only against homosexuals but bisexuals persons as well. Sexual prejudice can also be used to refer to negative feelings and attitudes toward any sexual orientation whether it is homosexual, bisexual, or heterosexual. Homophobia suggests that the source of the negative attitudes towards homosexuals is psychopathological in nature. What is most likely is that these attitudes are the result of multiple factors including the violations of cultural and or religious norms and beliefs. The term sexual prejudice conveys the negative attitudes toward homosexual or bisexual behavior, people with a homosexual or bisexual orientation, and communities of homosexual and bisexual persons [2, 3].

The term heterosexism has also been used to describe the negative attitudes toward homosexual persons by individuals and institutions. Heterosexism is defined as a belief that any form of sexual expression other than heterosexuality is inferior and unacceptable. Both the terms sexual prejudice and heterosexism do more to illustrate the ubiquitous nature of negative feelings toward homosexuals by emphasizing the cultural and institutionalized nature of the attitudes rather than reducing them to the level of the individual as does the term homophobia.

Relevance to Childhood Development

The relevance of homophobia to childhood development is somewhat complicated. It is early in social development that children become aware of religious beliefs and societal norms and this is when the negative attitudes toward homosexuals most likely begin. The issue is complex in that the negative feelings expressed as homophobia, sexual prejudice, and heterosexism often are a part of the religious values or

societal norms of the cultural in which the child belongs. Many if not most societies and religions hold negative attitudes toward homosexual persons and in some countries homosexual acts are punishable by imprisonment or even death. Educating children in views that are contrary to religious beliefs and societal norms about homosexuality may be difficult if not impossible in some situations [3].

Another issue relevant to development would be when the development of sexual identity begins in adolescence. Adolescents who may begin to identify with a homosexual orientation may be at risk for discrimination and harassment not only from peers but from parents and educators as well. Many homosexual adolescents have the added disadvantage of not having any support systems or positive role models during this period of development [4, 5].

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Homoscedasticity

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Synonyms

Assumption of normality; Homogeneity of variance

Antonyms

►Heteroscedasticity

Definition

In statistics, homoscedasticity occurs when the variance in scores on one variable is somewhat similar at all the values of the other variable.

Description

To illustrate homoscedasticity, assume a group of researchers are collecting continuous data (i.e., correlation design), whereby they are looking at 10 year-olds' weight and their stress level (as measured on a scale of 1–10). The data is said to be homoscedastic if the variance in the stress scores is somewhat the same across the children who weigh 70, 85 and 90 pounds.

In regression analysis, the assumption of homoscedasticity occurs when at each level of the predictor variable, the residuals have similar variances [1, 2].

One way to test this assumption in regression analysis is through requesting a residuals scatterplot. The predicted scores lie on the first axis of this scatterplot, while the residuals (prediction errors) lie on the second axis. If the assumption of homoscedasticity is met, the shape of the data will be rectangular, with a high concentration of scores along the center. The further the scores lie from the center and/or the rectangular shape, the more the data becomes heteroscedastic [3].

In correlation studies, a bivariate scatterplot can be requested. If the assumption of homoscedasticity is met, the shape of the data distribution will be oval. Similarly, the more the data moves away from an oval shape, the more it is considered heteroscedastic.

Meeting the assumption of homoscedasticity, like meeting other assumptions that underlie most multivariate procedures, is important since it renders statistical inferences more robust. The more the variables are skewed, the less likely the data would be homoscedastic. In such cases, transformation of the skewed variables is generally recommended [3].

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Homosexual

►Homosexuality

Homosexual Identity

►Sexual Identity

Homosexuality

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Synonyms

Bisexual; Gay; GLBTQ; Homosexual; Lesbian; Queer; Transgender

Definition

Broadly defined, homosexuality refers to the sexual and/or romantic attraction to one's own gender. Men who are attracted to men are generally referred to as "gay men." Women who are attracted to women are commonly referred to as "lesbians." There has been some opposition and global controversy regarding the word "lesbian." Specifically, Lesbian, with a capital L, refers to an inhabitant of the Isle of Lesbos. The islanders of Lesbos once sued a gay rights organization over their use of the word "lesbian," stating that the impact of the word violates the civil rights of the islanders and their freedom of self-identification [2]. To disunite this unintentional lingual connection, it has become more common to use "gay woman" instead of lesbian.

Description

Definitions are deceptively simple modalities to describe words and create meaning. Homosexuality is a word that changes in meaning depending upon the context and the venue in which it is being discussed. The debates about homosexuality are generally twofold and center simultaneously on etiology and morality. The proposed solution to one of those questions often influences the answer to the other question. In 2001, Robert Spitzer, MD, presented a study that contained accounts of homosexuals who converted to heterosexuality, suggesting that homosexuality is a choice instead of a biological imperative. The media discovered the story and before checking facts or interviewing the researcher, posted headlines that proclaimed homosexuality had been scientifically proven to be a choice. Later, Spitzer admitted that the results of his study were not generalizable because the ex-gay participants were solicited from Laura Schlesinger's radio talk show, which had a definite notion of that subject [6].

Before Spitzer's study, the psychological community removed homosexuality from the DSM in 1973. Unfortunately, that controversial decision did not serve to modify the view of mainstream society that homosexuality is abnormal or that it is the result of stunted psychosexual development. Some psychologists maintained a blatantly antagonistic attitude towards gay men and women who came in for therapy. There are reports of some Psychologists using ECT (electro convulsive therapy) on clients who self-identified as gay. Psychologists also developed theories regarding the etiology of homosexuality, all of which implied abnormality. The theories were usually erroneously connected with quantitative studies that began with a definition of what constituted the different categories of sexuality while largely ignoring the qualitative experience of the subjects [7]. This attitude has been embraced by organizations that seek to "cure" homosexuals, which is defined as embracing a heterosexual lifestyle.

Heterosexuality is not only considered normal but also the only moral and Christian *choice* by ex-gay organizations that usually have affiliations with local churches. The names of some of these organizations are: Exodus International, Desert Stream Ministries, People Can Change, Evergreen International, and Regeneration, Inc. The 1999 movie *But I'm a Cheerleader* takes a humorous look at an ex-gay camp. In the movie, a young girl's friends and parents suspect that she is gay and they all agree to check her into a camp with other individuals who are in need of "the cure." The legal system is also involved in this style of heterocentrism in that the consensual sexual activity associated with gay men and women is deemed illegal in many states. Additionally, in the 2008 election, California, Arizona, and Florida voted to amend their state constitutions to define marriage as a union between a man and a woman. There are now 29 states that have amended their constitution to ban same-sex marriage. In stark contrast to the United States' apparent attitude regarding gay women and men, same-sex marriage is recognized as equal to heterosexual marriage throughout Canada, Belgium, Spain, the Netherlands and Norway.

Relevance to Childhood Development

Drescher [5] wrote that psychological professionals are now more commonly conceptualizing homosexuality as "a normal variant of human sexuality" (p. 443). With that in mind, the therapeutic search for an etiology to try and explain a client's sexuality is unnecessary and, in most cases, irresponsible. Although he could not prove it at the time, Freud believed that there was a biological basis for homosexuality and believed that homosexuals could be productive and well-adjusted members of society (Green, 2003). If a gay woman or a gay man comes in for psychotherapeutic treatment, it is far more likely that their struggle will be in constructing a cohesive narrative in their lives that includes homosexuality. Gay men will

frequently report to their therapist that when they were children and adolescents, their male caregivers attempted to force them into activities that are generally considered more masculine in nature (e.g., playing sports) and condemned any display of what would be considered feminine activities (e.g., playing with dolls). Isay stated that a parent who punishes their child for engaging in behaviors that do not fit with the dominant construct of their gender might prevent the child from developing a healthy attitude about their emerging sexuality [1].

There are many theories of development that are used to categorize human behavior. It is important to remember that not every client will fit within the narrow molds cast by those models. The same is true with the models that have been developed with regard to homosexual development. The client should be encouraged to define what being a gay man or a gay woman means within the framework of their dominant culture and familial interactions. Coleman [3] developed a five-stage model for the process of coming out, which is the moment when a gay individual reveals to their family, friends, and society at large that they are gay.

STAGE I: Pre coming out – the child will learn about the family and society's feelings about homosexuality. If negative attitudes are displayed about those feelings, the child may become depressed and conflicted and act out behaviorally.

STAGE II: Coming out – the individual acknowledges their sexuality. The key task after that acknowledgement is telling someone about it. The reaction of this confidant will shape the individual's self-image and their level of comfort about opening up to other people. The median age for this stage is 13–18.

STAGE III: Exploration – the task at this stage is to learn how to interact with other homosexuals and develop a sense of self as a homosexual person. This stage may also include seeking a sexual partner and trying to achieve a sense of self-esteem. One of the pitfalls of this stage would be using drugs or alcohol to self-medicate and soothe a wounded ego or battered self-image.

STAGE IV: First relationships – after a period of social and perhaps sexual exploration, an individual will develop a need for a stable, committed relationship. The task at this stage is learning how to exist as a gay couple in a predominantly heterosexual society. The attitudes of others play an important role in the longevity of first relationships.

STAGE V: Integration – this is an open-ended stage of development that will persist across the remainder of the lifespan. Long-term relationships that approximate heterosexual relationships in terms of commitment and familial obligations are not uncommon. This stage usually begins 10–13 years after Stage II.

This model is similar to other developmental models in that there are tasks that occur at each stage that must be completed before the moving on to the next stage. While no model will fit every single person that presents for therapeutic intervention, Coleman's model would be an empowering way to allow the young client an opportunity to see hope and acceptance rather than pathology and a lifetime of living a secret life.

The American Psychological Association has adopted standards for the ethical treatment of homosexuals and there is a wealth of literature about designing a gay affirmative practice for adults. Precious little has been written about the special challenges that gay youth face and developing practices that will affirm and assist them through their development. Crisp and McCave [4] wrote about this topic and offer suggestions about the attitudes psychological professionals should adopt to meet the needs of this unique and ubiquitous population. Beyond any textbook or scientific study, homosexual youth and adult populations deserve respect and support from the professionals from whom they seek services. There are steps that society is making to embrace homosexuality in a way that did not exist a short 10 years ago. For example, there are television channels that now carry gay programming, movies with gay affirmative messages, television shows with central characters who are gay, and websites that gay youth can access that will connect them with services and groups in their area of the world. Some of those resources are listed below and fortunately it is not a complete list.

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Suggested Resources
http://www.pinkpractice.co.uk/gayaffirm.htm
http://www.gayaffirmativetherapy.com
http://www.logoonline.com
http://www.gaywired.com
http://www.tvgayguide.com
http://pridenation.com
http://www.heretv.com
http://www.inthelife.org

Homozygous

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Definition
Homozygous, meaning similar, is a specific genotype which exists when a child has either two recessive or two dominant genes from the parents.

Description
When the DNA from a sperm and egg combine they form the unique characteristics of the offspring through the expression of dominant and recessive traits. If the chromosomes in a homologous pair of genes have similar alleles they are considered to by homozygous [1].

An example of this would be if a child receives the dominant gene trait of blue eyes from the mother and blue eyes from the father, then the child is homozygous to receive blue eyes and will in fact have blue eyes.

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Hormones

Synonyms
Estrogen

Definition
A chemical that is released by the endocrine glands into the bloodstream to affect different body targets.

Description
The human body contains around 100 hormones that can be classified into two different types; peptide or steroid. Peptide hormones are created by cellular DNA in the same fashion other proteins are made. A peptide hormone binds with metabotropic receptors on the cells membrane to create a second messenger, this second messenger affects the target cell's physiology and influences the cell's functioning. Some common peptide hormones are growth proteins and insulin. Steroid hormones are created by synthesizing cholesterol and are lipid soluble. The steroids diffuse from their gland sites and cross through cell membranes to influence the cell's DNA to increase or decrease protein production. Steroids are found in a number of gland sites including the adrenal cortex, thyroid, and gonads.

There are three different categories of hormones that affect human behavior, also note that hormones may fall in more than one category, they are as follows:

1. Hormones that help maintain homeostasis in the body
2. Gonadal (sex) hormones that control the functioning of reproductive organs (e.g., Testosterone, estrogen, progesterone, prolactin, and oxytocin)
3. Hormones and stress hormones that help prepare human bodies for physiologically or psychologically challenging events or emergencies (e.g., Glucocorticoids including cortisol and corticosterone)

Further, hormones can be used to prevent or treat diseases, for replacement therapy if glands are removed or are malfunctioning, to counteract aging affects, and to gain physical advantages in sports.

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Hospice

Hospice is a type of care focusing on the palliation of a terminally ill patient's physical or emotional symptoms. The hospice concept has been evolving since the eleventh century. Hospices have been places of hospitality for the ill, wounded or dying and in previous centuries for travelers and pilgrims. The modern concept of hospice includes palliative care for the incurably ill typically in their own homes. Hospice care emerged in the 17th century but many of the foundational principles by which modern hospice services operate were pioneered in the 1950's by Dame Cicely Saunders. Hospice care has rapidly expanded through developed countries.

Hospital Admissions for Young Children

►Hospitalization of Preschoolers

Hospitalization of Preschoolers

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Synonyms

Inpatient care for preschool children; Hospital admissions for young children

Definition

The period of hospitalization in a health care facility that begins with a child's admission and ends with discharge.

Description

In 2000, approximately 18% of the 36 million United States hospital admissions were for pediatric patients between birth and 18 years of age. Preschool-age children, (i.e., children between 3 and 5 years of age) accounted for approximately 3.6% of these pediatric hospitalizations [1]. The primary reasons for hospitalization of preschoolers include asthma, pneumonia, fluid and electrolyte disorders, epilepsy and convulsions, infections, gastroenteritis, chemotherapy, and radiotherapy. Medical procedures most likely to occur during these hospitalizations include diagnostic spinal tap, appendectomy, respiratory intubation and mechanical ventilation, respiratory therapy, vascular catheterization, blood transfusion, cancer chemotherapy, and antibiotic therapy. The average length of stay for pediatric illnesses is 3.9 days [1].

Relevance to Childhood Development

Hospitalization of a preschool-aged child can be extremely stressful and frightening for both the child and their family. The ability of a preschool-aged child to understand the process of hospitalization is limited by their level of cognitive development [4]. According to Piaget's theory of cognitive development, preschoolers are in the preoperational phase of development during which they begin using symbolic play and are able to use language to discuss objects that are not present. Speech at this stage is still egocentric. Magical thinking is common along with increased use of pretend play. In addition to cognitive development, preschoolers are also developing their social and emotional skills. According to Erickson [2], preschool aged children are faced with two tasks: (1) developing autonomy versus shame, and (2) learning initiative versus guilt. These tasks are necessary for young children to develop a sense of independence and self-control as well as to begin to form healthy interpersonal relationships.

Given preschooler's level of cognitive and emotional/behavioral development it is not surprising that hospitalization can be an extremely overwhelming and distressing experience. Some common difficulties experienced by preschool-aged children include problems understanding and adjusting to their new hospital environment, the necessity of constant monitoring (e.g., nurses and various other medical staff coming in and out of their room), and medical procedures. Some negative reactions to hospitalization noted in the literature include withdrawal or aggressive behaviors, increased separation anxiety, unrealistic fears, and behavioral regression (e.g., a child who has been toilet trained may start having accidents). Common pediatric fears include body mutilation, fear of the unknown, the supernatural, and separation from loved ones. More specific hospital-related concerns involve fears of intrusive procedures and pain. Fear of needles and shots is the most frequently reported hospital-related fear. The preschooler's behaviors in the hospital may also vary as a function of disease chronicity and severity. For example, research indicates that children with acute illnesses demonstrate more internalizing behavior in the hospital relative to children diagnosed and treated for chronic illnesses [3]. Further, children whose disease was considered life-threatening demonstrated more internalizing and externalizing behavior during hospitalization relative to those with non-life-threatening illnesses.

While research addressing the long-term impact of hospitalization on preschool-aged children and their families is limited, clinical interventions have been developed to promote adaptive coping during hospitalization [5]. Parents and medical team members should assess symptoms of distress including heightened somatic complaints, withdrawal, anxiety, and aggression. It is important that medical information, particularly procedures, be explained in simple and direct words. Using pictures is often helpful. Additionally, any questions asked by the preschooler should be answered directly and briefly; too much detail is counter-productive and will only serve to heighten their anxiety. Modeling appropriate coping and teaching preschooler's strategies (e.g., teaching deep breathing through use of party blower) is helpful. There

may be occasions when simply using distraction is necessary to help the preschooler through the procedure. During hospitalization it is helpful to let the child select familiar items from home to bring to the hospital. While in the hospital parents and medical team members should help the preschooler maintain a sense of control by giving them simple choices (e.g., you can take the medicine now or in 5 min) and whenever possible encourage them to participate in self-care. Preschoolers need structure and consistency. Keeping the hospital routine as close to the child's normal daily routine will help both with adjustment to the hospital and the transition home after discharge. If specific concerns are noted, most tertiary children's hospitals have medical team members who specialize in helping children adapt to their medical situations. Child-life specialists use medical and therapeutic play to help the child gain a sense of mastery over their medical situation. If more serious distress is noted, psychologists may help the child to cope with and adjust to the situation using empirically-validated clinical interventions.

It is important to remember that not all children will experience adjustment difficulties during hospitalization. Children are generally resilient and will easily adapt to the hospital environment. However because early medical experiences will have long-term impact on future health care issues it is important to address fears and concerns as soon as they are noticed.

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Hostile Aggression

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Synonyms

Affective aggression; Impulsive aggression; Reactive aggression

Definition

Hostile aggression is a type of aggression that is committed in response to a perceived threat or insult. It is unplanned, reactionary, impulsive, and fueled by intense emotion as opposed to desire to achieve a goal. Aggressors typically have a sense of a loss of control during outbursts, and characteristically experience physiological hyperarousal.

Description

►Aggression in children and adolescents can take many forms. It can include ►bullying, fighting, teasing, or rumor spreading. Definitions of aggression have varied; some define it by intention of causing harm while others define it by the action of causing harm itself [1]. Aggression in general has been classified on various different dimensions. Most notably, it has been classified by the type of aggressive acts committed and by the state of mind or intention of the aggressor.

Aggression is frequently classified as hostile versus proactive/►instrumental aggression [1]. Reactive/hostile aggression is also known as impulsive or affective aggression. It is unplanned, emotional, and characterized by a loss of control. Individuals exhibiting this type of aggression attribute more hostile intent to ambiguous events. They characteristically have increased physiological hyperarousal. Whereas hostile aggression is fueled by impulsive emotion, instrumental aggression is planned and purposeful, done as a means to an end. Individuals who commit acts of instrumental aggression do not feel a sense of loss of control, and they even experience physiological hypoarousal. The two types of aggression are correlated with each other, but still represent distinct classifications [1].

It has been claimed that the instrumental vs. hostile aggression dichotomy is no longer useful [2]. According to this assertion, it is too simplified and does not explain aggressive acts that are planned and calculated but motivated by hot-blooded anger (e.g., Columbine). Nevertheless, it is still a widely used and accepted conceptualization of human aggression.

Social information processing theory also seeks to explain aggressive behavior in individuals. According to this theory, one's perception of social events and decisions on how to react include a five step process [3]. The first step is that social cues are encoded by the person, with aggressive children selectively attending to hostile or threatening cues in the environment more than nonaggressive children. Next, as these cues are encoded, the individual interprets the cues often using past experiences as references for interpretation. Aggressive children are more likely to interpret ambiguous cues as hostile, which is known as hostile attribution bias. The next step is response search,

in which the person generates a list of possible reactions. Aggressive children generate more aggressive responses and fewer nonaggressive responses. In the fourth step, these different responses are evaluated and the person chooses one. The final step involves enacting the chosen response. Recent research has also shown that both bullies and victims have shown similar patterns of social information processing [4]. This theory has undergone tremendous research investigation since its original formulation, but it is still commonly applied to how people act in social situations and to hostile aggression.

Those with hostile aggression scored high on measures of anger and impulsivity [1]. As such, certain psychological disorders are associated with higher rates of aggression, such as attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and ►conduct disorder (CD). In a study of hostile aggression in children with one or more of these diagnoses, children responded aggressively when in a high provocation situation [5]. Children with comorbid disruptive behavior disorders (i.e., ADHD, ODD, CD) responded more aggressively than children with only one or no diagnosis to low provocation situations as well. They also were more physiologically hyperaroused and continued to act aggressively for a longer period of time.

Relevance to Childhood Development

Much work has been done on examining various biological, social, and psychological variables that represent risk factors for the development of aggression. Certain biological predispositions (e.g., genetics, prenatal exposure to toxins, traumatic brain injury) can influence ability to regulate emotion or social cognitive functioning. These biological factors can interact with the environment to produce aggressive behavior [6]. Parental rejection and neglect have also been related to aggression in children. Harsh discipline and high family conflict have also been associated. Aggressive behavior in childhood leads to rejection by peers, which leads to delinquent peer associations and future aggressive and antisocial behavior [6], as well as increased risk for substance abuse in high school [7].

In a recent comprehensive study which considered several predictors of hostile aggression, a pathway of cumulative risk factors was identified [8]. Children born into environments which include low socio-economic status and parental depression were found to be at greater risk for later aggression and antisocial behavior. Harsh and inconsistent discipline is more likely in these adverse contexts and may lead to aggression. Due to this family environment, the child demonstrates cognitive and/or social deficits when entering school, and this leads to peer rejection and academic difficulties. As the child ages and moves into adolescence, the parents become less involved and able to influence the child's behavior, thus the adolescent develops associations with delinquent peers, which is a strong predictor of violent, aggressive, and antisocial behavior. Since this study indicates a chain of risk factors, intervention can be aimed at disrupting the development of aggressive characteristics at any (or every) point in the process [8].

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Hostility

►Aggression

House-Tree-Person (H-T-P)

►Draw-A-Person Test

HRB

►Halstead-Reitan Neuropsychological Test Battery

HRNB

►Halstead-Reitan Neuropsychological Test Battery

HSQ

►Barkley Home Situations Questionnaire

Huffing

►Inhalants

Human Cell

The word cell comes from the Latin cellula meaning a small room. This term was coined by Robert Hooke in a book he published in 1665 when he compared the cork cells he saw through his microscope to the small rooms monks lived in. The cell is the functional basic unit of all known living organisms. The human cell was discovered by Robert Hooke. It is the smallest unit of life classified as a living thing. It is frequently referred to as the building block of life. Humans are multi-cellular possessing an estimated 100 trillion cells.

Human Development

►Child Development

Human Evolution

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Synonyms

Paleoanthropology

Definition

The study of human evolution is a multidisciplinary effort known as paleoanthropology. The consensus among scientists is that early hominids first appeared in Africa and shared a common ancestor with archaic chimpanzees. After a period of great diversity, hominids spread from Africa to both Europe and Asia and, eventually, the sole surviving species of *Homo sapiens* emerged.

Description

Evolution can be thought of as the adaptation of living organisms, over time, to their environment. Adaptation occurs constantly, so evolution can never be thought of as being complete. It is best conceptualized as an ongoing process in which living things strive to continue the viability of their species within an ecosystem that is also changing. As human beings are living things, the general principles of evolutionary theory can be used to help understand the behavioral and biological similarities modern humans share with related life forms, as well as to suggest the biological underpinnings of human social systems and psychology. Both Charles Darwin and T. H. Huxley theorized about human evolution in *The Descent of Man* [3] and *Evidence as to Man's Place in Nature* [5], but in the nineteenth century, the human fossil evidence beyond *Homo erectus* and *Homo neanderthalensis* was too sparse to allow advanced theory development beyond conjecture. The explosion of fossil discovery throughout the twentieth century led to a much richer and fuller conceptualization of human evolution leading to our own species of *Homo sapiens*.

Scientists studying human evolution primarily rely on cladistics, the same classification tools used by scientists studying other types of evolution. A time-honored technique in which fossils are classified according to structural similarities, cladistics allows scientists to organize

Author's Note
This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

taxonomical data into tree diagrams called cladograms according to similarity of physiological data. Wherever possible, DNA evidence is used to supplement and enhance the data obtained by physical remains and fossils. Anthropological evidence based on artifacts is also incorporated whenever the human species in question engaged in tool-making and use.

It is important to remember that the fossil record, almost by definition, is incomplete. It is unknown how many hominid species truly existed, and whether our current taxonomies underestimate or overestimate true hominid diversity. As even *Homo sapiens* was a preliterate species until fairly recently, there is a complete absence of written records prior to the cave art attributed to the Cro-Magnons and despite the presence of anatomical apparatus required for speech, it is impossible to do more than speculate as to which hominids possessed language and the complexity of such languages. Analogies made to the tribal structure of aboriginal peoples must also be viewed with caution, for even within our species evolution has occurred over the past 200 generations.

Chronology of Human Evolution

Between five and six million years ago, an ape-like genus of hominid known as *Australopithecus* first appeared in Africa. The earliest fossil evidence for these creatures exists in modern-day Chad and Kenya, although *Australopiths* most likely were widely dispersed throughout the continent. These earliest *Australopiths* had only recently diverged from a common ancestor they shared with what would eventually evolve into modern chimpanzees; this is based not only on fossil evidence indicating morphological and structural similarities between *Australopiths* and archaic chimpanzees but also by contemporary DNA evidence indicating that modern humans and modern chimpanzees differ in their nucleotide sequence by only about 1.27% suggesting the two living creatures share a fairly recent ancestor.

The *Australopiths* were shorter than modern humans (typically reaching a height of only 3 ft), and had a generally ape-like appearance. Yet they differed from archaic and modern apes in two key ways. First, they were truly bipedal, with shorter arms and an erect spinal cord. Second, they possessed larger brains than apes of a comparable size. We know little about the behavior of the *Australopiths* aside from inferences based on their preference for savannahs as their habitat. There were multiple species within the genus of *Australopithecus*, some of which survived in Africa until roughly one million years ago. Perhaps the best-known species of these hominids, *Australopithecus afarensis* (nicknamed "Lucy" by the team of scientists led by Donald C. Johnson, who discovered the fossils of the species), is believed to have been the direct ancestor of the *Homo* genus which would eventually lead to modern humans. More recent species of *Australopiths*, including *Australopithecus robustus* and *Australopithecus boisei* diverged away from the path that led to *Homo* and are not believed to be ancestral to modern humans.

Approximately two million years ago, several varieties of the *Homo* genus (such as *Homo habilis* and *Homo erectus*) could be found throughout Africa. The earliest of these, represented by *Homo habilis*, are transitional figures between *Australopiths* and later, more recognizably human examples of the *Homo* genus. Given the large gaps in the fossil record, it is unclear how many species of *Homo* there were, or even how many species coexisted simultaneously. However, it is very clear that *Homo erectus* was in many ways the most successful of its competitors. Unlike most early humans, *Homo erectus* survived as a species for over a million years, only becoming extinct once more recognizably modern humans appeared about 500,000 years ago. *Homo erectus* stood about 5 ft tall, which approximates the lower height limits of modern humans, had the appropriate anatomy and brain structure for speech, and used crude tools to hunt and build. In common with some other late-period humans such as *Homo ergaster*, *Homo erectus* lived in small tribes of up to 50 members and presumably had some form of social structure.

Homo erectus is also at the crux of a controversy between two competing theories of the dispersion of humans outside of Africa. Traditionally, it was believed that *Homo erectus* migrated out of Africa and that all its descendants evolved in parallel throughout Asia and Europe, leading independently to *Homo sapiens*. This theory, known as the Multiregional Origin, is largely based on the evidence of *Homo erectus* fossils found throughout Asia; both the so-called "Java Man" and "Peking Man" humans discovered in Asia were examples of *Homo erectus*. Thus, according to the Multiregional Origin theory, the various modern races developed in parallel, and interbred just enough to avoid evolving into distinct species. However, based on additional taxonomical classification of anatomical characteristics and skeletal structure, a competing theory claims that the true ancestor of *Homo sapiens* is actually *Homo ergaster*, which left Africa at a later time than did *Homo erectus*. This competing theory does not deny that *Homo erectus* migrated out of Africa, but instead maintains that *Homo erectus* became extinct and was displaced by later waves of *Homo sapiens* immigration out of Africa. This theory, known as the Out-of-Africa theory, receives strong support from the analysis of

mitochondrial DNA in surviving tissue samples (although proponents for the Multiregional theory also claim mitochondrial DNA evidence of their own). Regardless, early humans did leave Africa about one million years ago and migrated throughout Asia and Europe, ultimately evolving into *Homo sapiens*.

The diversity of different human species declines at around the same time that *Homo erectus* migrated into Asia. The last two species of human are *Homo sapiens* and *Homo neanderthalensis*. All humans alive today are classified as *Homo sapiens* whereas there have been no surviving examples of *Homo neanderthalensis* for the past 30,000 years. Again, there is considerable controversy in the literature regarding how similar these two species may have been, despite the plethora of available Neanderthal remains and the fact that Neanderthals are the best-understood hominids apart from *Homo sapiens*. On the one hand, the traditional view of the Neanderthal stereotypes the species as an ogre-like creature of limited intelligence, unable to stand fully erect, and incapable of mastering any but the crudest technologies. A more radical view claims that socially and intellectually, Neanderthals were virtually undistinguishable from *Homo sapiens* and that the two species were so genetically similar that they interbred. Recent discoveries of the impressive stone craftsmanship Neanderthals were capable of, as well as the burying of their dead in what appears to be a ritualistic manner, have not brought resolution to the controversy. Paleoanthropologists are divided regarding the crediting to Neanderthals as a hominid capable of symbolic thought capabilities that rival the *Homo sapiens* from the same period.

For close to a quarter of a million years, Neanderthals lived across the Near East and Europe. In comparison to *Homo sapiens*, Neanderthal skulls had pronounced bony brows and an enlarged occipital bun toward the rear of the skull. In terms of overall brain capacity, Neanderthals are usually considered to have larger brains than *Homo sapiens*, and physiologically Neanderthals were robust hominids possessing greater physical strength than contemporaneous *Homo sapiens*, usually identified as Cro-Magnons.

However, starting around 40,000 years ago, *Homo sapiens* migrated from Africa into Europe via both Eastern Europe and the Iberian peninsula. Within the space of about 10,000 years, *Homo sapiens* completely replaced the formerly dominant *Homo neanderthalensis* throughout Europe. Exactly how this happened is a mystery, given that Neanderthals had a strong advantage due to entrenchment and experience within Europe. It is likely that modern cognition emerged in *Homo sapiens* at around this time, and provided the necessary abilities to compete successfully with Neanderthals. Although mitochondrial DNA studies do not support this hypothesis, a strain of contemporary research suggests that Neanderthals were simply absorbed within *Homo sapiens* due to cross-breeding even if those genes are no longer found within modern *Homo sapiens*' DNA.

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Human Figure Drawing

►Draw-A-Person Test

Human Immunodeficiency Virus (HIV)

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Synonyms

Acute HIV infection

Definition

Human immunodeficiency virus (HIV) is a single stranded RNA retrovirus that attaches itself to the proteins

on the surface of infection fighting white blood cells in the human immune system (T-cells (T-lymphocyte)). Over time the virus is replicated, many T-cells are destroyed, and the immune system is seriously impaired, sometimes leading to the diagnosis of Acquired immunodeficiency syndrome (AIDS).

Description

HIV is transmitted into the human body via infectious body fluids including blood, semen, vaginal secretions, and breast milk. Modes of transmission include contact with infected blood (e.g., injection drug use, blood transfusion, occupational needle sticks), sexual contact, ingesting infected breast milk, and transmission during child birth [2]. Testing of donated blood began in the US in March of 1985 and currently, transmission of HIV via transfused blood is very rare.

Upon entering the body, HIV attaches itself to the proteins (known as CD4, CCR5, and CXCR4 molecules) on the surface of infection-fighting white blood cells that comprise the human immune system. These specialized white blood cells are known as T-cells, and function to detect and attack foreign invaders in the blood. Upon fusing to the CD4 surface molecules, the HIV injects genetic material, or RNA, into the host cell. Next, the RNA is replicated within the T-cell. The T-cell is subsequently killed as the new HIV copies are released into the blood stream and the infection process continues. In turn, the immune system detects the loss of the T-cells, and protects itself by producing new cells [8]. Over time, more T-cells are destroyed, the viral load of HIV increases, and immune system functioning is compromised or impaired [1].

Once infected, the presence of HIV in the blood stream is measured by the means of the CD4+ count and the viral load count. The CD4+ count is the number of helper T-cells present in a milliliter of blood, representing an index of a person's immune system functioning. Non-infected individuals generally have a CD4+ count ranging from 500 to 1,500 cells, but after the first year of HIV-infection, this count decreases at a rate of approximately 30–90 cells yearly. The viral load count measures the number of HIV particles per milliliter of blood plasma, and is used to measure the rate at which CD4+ cells are being destroyed. Eventually, HIV kills enough cells that an individual's immune system is unable to eliminate other infections that can make the person sick. These infections are referred to as "opportunistic infections." AIDS is the later stage of HIV infection, and is diagnosed when either the CD4+ count is less than 200 (or the percentage of cells that are CD4+ in all lymphocytes is less than 14%), or there is the presence of an AIDS identifying opportunistic infection (e.g., Pneumocystis pneumonia, Kaposi's sarcoma). Once a diagnosis of AIDS is made, the patient is always considered to have AIDS, despite response to medications, elimination of opportunistic infection, or increases in the number of CD4+ cells [8].

The first cases of AIDS were reported in the US in 1981, with the first pediatric cases being reported in 1982 [1, 8]. Since then, the HIV/AIDS epidemic has continued to grow worldwide. Most recent CDC data indicate that by the end of 2006, more than one million people (approximately 1,106,400) in the US were living with HIV/AIDS, with 21% unaware of being infected with HIV. Ethnic minorities are disproportionately affected with HIV, including adults and children [6]. Outside the US, this epidemic is large in comparison, with approximately 33 million people living with HIV worldwide, including up to 2.3 million children. Without access to prevention methods and treatment, these estimates will surely increase [7].

Despite the growth of the HIV/AIDS epidemic, fewer people die from AIDS-related deaths than ever before with the development of antiretroviral therapy (ART), or highly active anti-retroviral therapy (HAART). According to the CDC, the estimated number of deaths among adults living with AIDS increased steadily through 1995 and since then, this number has significantly declined in the US due to the development of HAART [4]. Furthermore, deaths of children due to HIV are declining, with a reduction from 554 deaths in 1993 to 48 deaths in 2006 [6]. In essence, HAART has transformed HIV from a terminal disease to a manageable, chronic illness by increasing the lifespan and improving immune system functioning of people living with HIV. Usually consisting of a "cocktail" of three or more anti-HIV drugs, HAART is designed to inhibit HIV replication, slow progression of the disease, and delay immune system decline. HAART works by driving down levels of HIV in blood, semen, and vaginal secretions [2, 8]. Over 25 different HAART medications are currently approved for use by the FDA with clinical trials being conducted on several new medications at any given time. Currently, there are five different classes of HAART medications available: nucleoside/nucleotide reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors, protease inhibitors, fusion inhibitors, and integrase inhibitors. Each class affects replication of the virus in a different way [3].

The goal for using ART is to achieve an "undetectable" viral load in the blood. All viral load tests have a cut-off point below which they cannot reliably detect HIV, which is called the limit of detection

and varies from one testing kit to another. Most viral load tests consider undetectable as less than 50 copies per milliliter of blood. Having an undetectable viral load signifies excellent viral suppression and means that transmission of the virus to others is less likely to occur. However, an undetectable viral load in a blood sample does not mean that other infectious body fluids will be undetectable of virus as well [8].

Relevance to Childhood Development

The HIV/AIDS epidemic has also impacted children in the US In 2006, approximately 9,522 children under the age of 13 had HIV or AIDS, with the large majority of these cases occurring through vertical transmission [6]. Fortunately, with the development of HAART, rates of pediatric infection occurring via mother-to-child vertical transmission have dramatically decreased. This approach involves both the use of antiretroviral medications to reduce viral load and use of antibiotics to prevent and treat opportunistic infection. The mother is treated throughout the pregnancy and during labor and delivery, and the newborn is also treated for a brief period of time with antiretroviral medications. At birth, many newborns show the presence of maternal HIV antibodies in the blood, but with treatment these antibodies disappear. With the use of ART to both mother and child and preventing HIV-positive mothers from breastfeeding, the chances of the infant contracting HIV is reduced to less than 2%, compared to the 25–30% chance of infection with no pre- and post-natal intervention [5].

Unlike the decreasing rates of pediatric HIV infection, an increase of HIV transmission has been documented in adolescents between the ages of 13 and 24, with approximately 56,500 adolescents living with HIV in 2006. Increasing rates of infection in this age category are largely due to heterosexual and homosexual transmission. A number of risk factors have been identified that make adolescents at persistent risk for infection, including having sexual intercourse at an earlier age, high rates of substance use, lack of awareness (especially in poverty-stricken areas and among youth who have dropped out of school), and increasing rates of sexually transmitted diseases [6].

Since the beginning of the US HIV/AIDS epidemic, much has been learned about the effects of HIV on childhood physical and psychological development. During the early phases of the epidemic (and currently in undeveloped nations), symptoms of infection in childhood included significant problems such as central nervous system (CNS) encephalopathy (characterized by either a loss of previously acquired development or a failure to progress in development), changes in the frontal cortex and basal ganglia, motor hyper or hypo-tonicity of muscles (i.e., increased or decreased muscle tone), and at times, early death. However, with the advent of HAART medications, these symptoms have been reduced significantly. Overall, early CNS disease and neurocognitive impairment is associated with a poorer prognosis, but implementation of HAART can result in improvement in these areas. If untreated, HIV infection can lead to significant neurocognitive and developmental difficulties, and even children who are asymptomatic may show some neurocognitive impairment. Many children treated with HAART regimens do not show global deficits in cognitive ability, although specific deficits have been identified in areas such as visual-spatial and perceptual organization, social emotional regulation, language development, and attention problems. These specific deficits can negatively impact school performance and can be addressed with special education services. Given the limitations of antiretroviral medications and evolving resistance to classes of drugs, the future of long-term HAART treatment is uncertain, with several experts anticipating that some vertically infected adolescents will eventually experience neurocognitive decline similar to AIDS-related dementia [1].

Research with a pediatric HIV-positive population has also focused on psychosocial issues such as coping with stigma, disclosure of status, etc. Caregivers of HIV-positive children who are also positive have reported feeling socially isolated, experiencing financial difficulties, and dealing with the burden of caring for themselves and infected children. However, research has suggested that psychological distress mainly occurs in the context of stressful life situations indirectly related to HIV, such as poverty, burden, and stigma [1].

Similar results have been found in children infected with HIV. Rates of clinically significant behavioral and emotional problems are higher in children with HIV than the general population, but when these children are compared to groups with similar backgrounds (e.g., ethnicity, socioeconomic status), rates of maladjustment are actually lower. This finding suggests that risk factors such as poverty, lack of insurance, and stressful life experiences have more of an impact on maladjustment than having the diagnosis of HIV. Most studies have found no significant differences in self-reported adjustment of children with HIV compared to children who have not been exposed [1].

Changes in behavior and emotional functioning can be related to the effects of the virus or the side effects of medications. Behavioral changes have been reported in children with CNS encephalopathy, and physical changes such as

small stature related to wasting, skin disturbances, ringworm, tube insertion for medication, and descended stomach can be experienced by some children. Physical changes in children's bodies can have related psychological problems, such as fear about being perceived as "different" from others. Side effects of medications include mood changes such as depression and anxiety, lipodystrophy, lipoatrophy, impaired concentration, appetite changes, nausea and vomiting, diarrhea, and changes in sleep patterns. However, these effects are not experienced by all children with HIV, and can be exacerbated or worsened by frequent hospitalizations, disruptions in normal routine, and medical procedures [1].

Disclosure of HIV status to children is an important issue, as nondisclosure has been associated with an increase of behavioral problems. There is no agreement as to when caregivers should tell a child about his/her HIV status, but the child's age, maternal depression, social support, stressful life circumstances, and severity of disease have been cited as factors related to caregiver's decision to disclose. The American Academy of Pediatrics Committee on Pediatric AIDS has recommended that a child's age and psychosocial maturity should be taken into account when considering disclosure of HIV. Once informed about HIV status, many children are told to keep their status a secret due to the negative social stigma associated with HIV. For some children, the burden of keeping HIV status a secret, feelings of shame, and feelings of being different from others can have negative effects on psychological functioning [1].

One of the primary challenges identified for children treated with HAART is medication adherence. HAART regimens can be complicated and time-demanding, and even partial non-adherence is associated with consequences such as increased viral load and resistance to drug combinations. Numerous barriers to adherence have been reported, including scheduling difficulties, food interactions, refusal and behavioral problems, and difficulty swallowing pills. Strategies that promote adherence include written medication schedules, visual aids and rewards, and allowing children to participate in the development and implementation of their treatment regimens. Counseling focused on tailoring specific regimens to the needs of families and cognitive-behavioral pain management strategies have also been demonstrated to be beneficial [1].

Research on HIV/AIDS is prolific and continues to evolve rapidly. The future will yield new developments in prevention and treatment of this virus, for children and adults alike. Since HAART medication has allowed people to live longer, healthier lives, research has begun to focus more on the long term effects of therapy and living with the HIV virus.

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Human Subjects Review Boards

►Institutional Review Boards

Humanism

►Humanistic Perspective

Humanistic Perspective

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Synonyms

Existentialism; Humanism

Definition

The humanistic perspective posits that people strive to achieve meaning, purpose, or actualization in their lives. Humanistic theorists and practitioners acknowledge the finality of life as well as the role of anxiety and suffering. Humanistic practitioners empathize with people as those people work through difficulties while trying to obtain goals.

Description

The humanistic perspective, also known as Existentialism, is a theoretical orientation related to counseling and development. It has had several contributors throughout time, most notably Victor Frankl, Abraham Maslow, and Rollo May. This school of thought does not possess any specific techniques of its own, but rather, draws on the techniques of other counseling theories, namely those of person-centered counseling.

The humanistic perspective's primary stance on human development and behavior is that anxiety and suffering is an inevitable and necessary part of the human condition. Further, this perspective maintains that people inherently want to grow and achieve meaning in their lives. However, obstacles can impede progress towards meaning and that is when people begin to suffer emotionally. Practitioners empathize with their clients and help them to determine life goals, how to achieve them, and how to handle possible obstacles.

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Humanistic Psychology

►Humanistic Therapy

Humanistic Therapy

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Synonyms

Client centered therapy; Depth therapy; Gestalt therapy; Holistic health; Humanistic psychology; Person-centered therapy

Definition

A genuine, non-judgmental, and empathic model of therapy that uses open-ended responses, reflective listening and tentative interpretations to promote client self-understanding.

Description

Humanistic Therapy overlaps considerably with other existential approaches and emphasizes the growth and fulfillment of the self (self-actualization) through self-mastery, self-examination and creative expression. It holds a hopeful, constructive view of human beings and the individual's substantial capacity to be self-determining. By and large, this therapeutic approach works with present (rather than past) occurrences and attitudes with a goal of client growth and fulfillment. Humanistic psychology acknowledges that an individual's mind is strongly influenced by ongoing determining forces in both their unconscious and in the world around them, specifically the society in which they live.

The origin of humanistic therapy came out of the humanistic psychology movement in the 1950s in reaction to both behaviorism and psychoanalysis. It is explicitly concerned with the human dimension of psychology and the human context for the development of psychological theory. Although the influences of the unconscious and society are taken into account, freedom of choice in creating one's experience is at the core, and is often referred to as "self determination." The intent of the humanistic approach is to look beyond the medical model of psychology in order to open up a non-pathological view of the individual. This usually implies that the therapist downplays these pathological aspects in favor of healthy aspects. The focus is on the client's ability to initiate change. Much of humanistic therapy is to help the client approach a stronger and healthier sense of self, also called self-actualization. All this is part of Humanistic psychology's motivation to be a science of human experience, focusing on the actual lived experience of persons.

In the late 1950s, psychologists concerned with advancing a more holistic vision of psychology convened two meetings in Detroit, Michigan. These psychologists, including Abraham Maslow, Carl Rogers, and Clark Moustakas, were interested in founding a professional association dedicated to a psychology that focused on uniquely human issues, such as the self, self-actualization, health, hope, love, creativity, nature, being, becoming, individuality, and meaning – in short, the understanding of "the personal nature of the human experience." Several humanistic approaches to counseling and therapy emerged out of this movement. The developmental theory

of Abraham Maslow, emphasized a hierarchy of needs and motivations; the existential psychology of Rollo May acknowledging human choice and the tragic aspects of human existence; and the person-centered or client-centered therapy of Carl Rogers, which is centered around the clients' capacity for self-direction and understanding of his/her own development.

Critics of humanistic theory contend that it lacks a cumulative empirical base, and that some directions encouraged self-centeredness. While proponents have not presented it as a science, they recognize that rather than being objective, science is the least subjective understanding of the world of which the largest number of people are aware. Humanistic psychology addresses the nature of the human experience, calling into question the nature of objectivity and the role of objective knowledge in the personal experience of life.

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Humor

►Mood

Hunger

►Malnutrition

Huntington's Chorea

►Huntington's disease

Huntington's Disease

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Synonyms

Huntington's chorea

Definition

Huntington's disease was first objectively described in 1872 by an American physician, George Huntington, whose name the condition now bears; Huntington termed the disease an inherited "heirloom" he had observed amongst his patients [6]. Although earlier descriptions had been presented, none had the detail of the observations recorded by Huntington himself along with longitudinal data provided by two prior generations of Huntington's, who were also medical professionals [8]. This degenerative brain disorder, which is also classified as a subcortical dementia, was first known as Huntington's chorea, as in "choreography," with chorea being a Greek word for dance [2, 9].

Huntington's disease, as a rare progressive subcortical dementia, afflicts about 5–10 in 10,000 people; Huntington's has a host of symptoms but is known for the prominent disordered-movement symptoms, characterized by the term chorea: Involuntary, twisting, writhing movements of the body and limbs, and grimacing of the face that become progressively more extreme and impairing [9]. The disordered movements result from the loss of neurons in a subcortical (below the cerebral cortex) structure, the caudate nucleus, which itself is a component structure of the basal ganglia. The basal ganglia is a movement-modulation structure and the neurons that are lost utilize the neurotransmitter known as GABA, or Gamma Amino Butyric Acid [1, 3, 9]. As Huntington's disease advances, more brain structures and regions show signs of the loss of neurons that release different neurotransmitters and the afflicted person shows signs of cognitive decline, psychotic symptoms and extreme emotional variability and disturbances, with depression being the most common disturbance of affect. Huntington's disease sufferers have a suicide rate that is

greater than other degenerative brain syndromes. The afflicted person typically dies in 15 or 20 years after the onset of symptoms, usually from causes of death seen in a bed-ridden dementia patient. There are no therapies for Huntington's disease [2, 4, 5, 9].

Huntington's disease is an inherited and autosomal dominant disorder, meaning only the genetic error needs to be inherited from only one parent and the children of afflicted individuals have a 50% chance of inheriting the disease; Huntington's is known to be due to a defect in the gene *ITI5* on chromosome 4 [9]. Individuals with normal versions of this gene have between 11 and 34 repeats of the codon or trinucleotide CAG. This means the DNA composing this gene has a recurring pattern of three component molecules (cytosine, adenine and guanine for CAG). Between 11 and 34 repetitions of this three molecule code are normal. Having between 35 and 40 repetitions is considered an at risk predisposition for pathology. Individuals with symptoms of Huntington's have as many as 100 repeats of the CAG trinucleotide, but the greater the number of repeats, the earlier the onset of symptoms and greater severity of symptoms [2, 9]. The onset of symptoms is typically observed between the ages of 30 and 50 but in a small number of cases a juvenile onset occurs that has an accelerated progress [7]; the typical age for onset occurs in midlife, often after marriage and children and the dominant nature of the inherited defect, means that many people at risk have seen their parents go into decline and die from Huntington's. A genetic test for Huntington's was developed in 1993 and only those with a family history would need to seek testing; the majority of individuals with a family history of Huntington's disease have not undergone the genetic test. The ambivalence and uncertainty of not knowing is no doubt difficult but may be preferable to knowing one is faced with a terrible demise [9].

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Hurl

▶Purging

Hydrargyrum

▶Mercury

Hydrocephalus

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Synonyms

Communicating hydrocephalus; Non-communicating hydrocephalus; Non-obstructive hydrocephalus; Obstructive hydrocephalus

Definition

A condition that results from the ventricles in the brain becoming enlarged due disturbances and/or abnormalities in the flow, production, and/or absorption of cerebrospinal fluid [6, 10].

Description

Hydrocephalus results from an excessive accumulation of cerebrospinal fluid in the ventricles. The accumulation of CSF often increases intracranial pressure and the ventricles become enlarged which can result in the disruption of subcortical and cortical functions [10]. Males seem more prone to hydrocephalus with 62% of sufferers of the disease being male [10].

Various types of hydrocephalus have been theorized. Communicating hydrocephalus refers to difficulties with

the production or reabsorption of CSF [4]. Obstructive or noncommunicating hydrocephalus results from a blockage within the ventricular system [10]. Although relatively rare, hydrocephalus can also occur from oversecretion of CSF which is often caused by a tumor on the choroids plexus.

Most children with symptoms of hydrocephalus often receive a shunt. A shunt is a medical procedure where excess CSF is drained away from the ventricular system into the stomach [10]. A shunt procedure involves causing a lesion to the brain which typically occurs in the parietal lobe of the right hemisphere.

Relevance to Childhood Development

Hydrocephalus can occur at any developmental stage and can be particularly damaging to the developing brain. It is estimated that 27 out of every 100,000 newborns suffer from hydrocephalus and if untreated can result in mental retardation [10]. Premature infants also appear to be at risk for hydrocephalus due to the increased rate of intraventricular hemorrhage which can interfere with CSF reabsorption [4]. Traumatic brain injury can result in hydrocephalus due to interference in the reabsorption of CSF. Similarly, Periventricular leukomalacia, which results in atrophy around the tissue surrounding the ventricles, can lead to excess CSF accumulation [4]. Finally, congenital disorders such as spina bifida, myelomenignecele, an A Chiari malformation, and Dandy Walker Syndrome have all been linked to increased rates of hydrocephalus.

The functional effects of hydrocephalus have been reported throughout the literature. Deficits associated with a varying etiologies of hydrocephalus in children have be seen in gross and fine motor functioning [7]; visual-motor and spatial abilities [5]; specific language skills [5]; isolated domains of memory (Yeates et al. [9]; attention and executive functioning [5]; and, behavioral regulation and control [3]. While such deficits are noted, these have been seen inconsistently as they appear largely dependent upon etiology [6]. Regarding actual cognitive sequelae, this also appears to depend on age at the time of insult or injury, severity of the injury, and the presence of other comorbid disorders [4]. For example, children with hydrocephalus secondary to a brain tumor had poor cognitive abilities than children with brain tumors without hydrocephalus; however, children with spina bifida with hydrocephalus performed equally to children with spina bifida without hydrocephalus [2].

In terms of achievement skills, Hoppe-Hirsch et al. [8] found that 60% of children with shunted hydrocephalus were placed in regular classrooms; however, half of these children lagged 1 or 2 years behind their same-aged peers. Barnes and Dennis [1] found that reading abilities of children with hydrocephalus were often within the normal range; however, arithmetic was a relative weakness. Zillmer and Spiers [10] commented that calculation, spelling, and reading comprehension or tasks that require increased attention and focus of concentration are often most affected.

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Hyperactivity

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Synonyms

Fidgety; Hyperkinesias; Hyperkinesis; Hyperkinetic; Restlessness

Definition

Motor activity that is developmentally inappropriate and significantly excessive relative to same-aged peers.

Description

Hyperactivity is frequently first identified as a problem in children as they enter preschool or kindergarten, and demands of the classroom environment (e.g., sitting still during lessons) are incompatible with excessive motor activity. Clinical interviews of parents that present with concerns of hyperactivity in their children, however, often reveal a pattern of excessive activity that was present since a much earlier age. For example, retrospective reports from parents recount their children climbing on kitchen cabinets, jumping on furniture, and struggling to sit still while getting dressed. Notably, extant studies suggest that individual differences in activity level are first apparent at the 28th week of gestation, and continue along a curvilinear developmental trajectory [12]. That is, children that exhibit hyperactivity during the school-aged years likely exhibited elevated levels of activity as toddlers, relative to same-aged peers. Collectively, whether or not a child's behavior is *hyperactive* depends largely upon the context of environmental demands, social/cultural norms, and appropriate expectations given the child's age and development. Measurement of hyperactivity is most frequently obtained from parent, teacher, and caregiver (e.g., daycare provider, babysitter) reports on objective ratings scales; clinical interviews with parents and other caregivers; behavioral observations by clinicians; and sometimes the child's self-report. Self-reports from hyperactive children, particularly those with ADHD, provide minimal diagnostic value since they frequently exhibit limited insight about their behavioral problems. Additional objective measures may include pedometers, stabilimetric cushions, and actigraphs.

Relevance to Childhood Development

Attention-deficit/Hyperactivity Disorder (ADHD) occurs in an estimated 3–7% of school-age children and is characterized by difficulties with attention, impulsivity, and of course hyperactivity [3]. Presence of the disorder conveys increased risk for several pejorative outcomes including long-term scholastic underachievement and interpersonal peer problems [4], long-term impairments across more major life activities than most other disorders seen in outpatient mental health clinics [5], and an estimated annual societal cost that ranges between $36 billion and $52.4 billion [9].

The etiology of hyperactivity in ADHD is remarkably varied in extant models of the disorder. For example, Barkley's [3] behavioral inhibition model suggests that children with ADHD exhibit hyperactivity due to deficient inhibitory processes that limit children's ability to maintain task goals, avoid the execution of a response when presented with a prepotent stimulus, or stop a response once it has been initiated. A recent meta-analytic review [1] and subsequent experimental examination [2] of the stop-signal task – the primary measure used in clinic- and laboratory-based research to investigate behavioral inhibition in children with ADHD – both found that performance on the stop-signal task may be downstream of higher order cognitive processes such as working memory. The impact of these findings transcends stop-signal research and raises important concerns regarding the central role of behavioral inhibition in extant models of ADHD, and ultimately hyperactivity. A second model suggests that children exhibit hyperactivity in an attempt to minimize the aversive nature of waiting for external-delayed reinforcement [13]. In contrast, the functional working memory model of ADHD suggests that children with ADHD exhibit hyperactivity to increase arousal needed for task demands [11]. A recent study examined 23 boys (11 typically developing children and 12 children with ADHD) between 8 and 12 years of age who completed phonological and visuospatial tasks that placed increasing demands on the working memory system [10]. While all children exhibited significant increases in activity during working memory relative to control conditions, children with ADHD became significantly more active relative to the typically developing children. This is the first experiment to demonstrate a functional relationship between working memory and children's activity level.

Hyperactivity is not pathognomic to ADHD and is frequently observed in other childhood disorders. For example, children diagnosed with early onset bipolar disorder often exhibit excessive activity, pressured speech and impulsivity. The association between increased activity and the presence of manic episodes is reflected in current DSM-IV diagnostic criteria as psychomotor agitation (e.g., restlessness, pacing) and increased goal-directed activity [6]. Restlessness and fidgeting are commonly observed in children diagnosed with anxiety disorders, such as generalized anxiety disorder, obsessive-compulsive disorder, social phobia, panic disorder, and post-traumatic stress disorder [8]. For example, Glod and Teicher [7] found that children diagnosed with PTSD (n = 19) were 10% more active and associated with a greater likelihood of developing problems of hyperactivity, relative to healthy controls (n = 15). Interestingly, increased anxiety-related activity may result from an over-arousal of physiological systems common to those implicated in children with ADHD.

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Hyperarousal

►Anxiety

Hypercoagulability

►Thrombophilic Disorders

Hyperkinesia Syndromes

►Dyskinesia

Hyperkinesias

►Hyperactivity

Hyperkinesis

Synonyms

Hyperactivity

Description

Hyperkinesis is a state of over-active restlessness sometimes referred to as hyperactivity. Hyperkinetic disorders are a group of psychiatric diagnoses listed in the International Classification of Diseases, Volume 10. Hyperkinesis is a recent phenomena in medicine. The roots of the diagnosis and the treatment of this entity are found earlier, however. Hyperkinesis was known in the first half of the twentieth century as minimal brain dysfunction, hyperactive syndrome, hyperkinetic disorder of childhood and several other diagnostic descriptions. Although the symptoms and the presumed etiology vary, in general the behaviors are quite similar and overlap. Typical symptom patterns include extreme and excessive motor activity, restlessness, fidgeting and, for some, mood swings.

Hyperkinetic

►Hyperactivity

Hyperkinetic Disorder

►Attention-Deficit/Hyperactivity Disorder

Hyperkinetic Syndrome

►Attention Deficit Disorder

Hyperlexia

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Synonyms

Precocious reading language disorder [1]

Definition

The advanced ability to decode and read single words without comprehension, well beyond expectations for chronological age, sometimes accompanied by fascination or preoccupation with numbers and letters. Hyperlexic children tend to have difficulty with oral or verbal communication and social interactions and are often considered to have an autistic-like presentation. There is disagreement at the present time whether Hyperlexia should be considered a form of learning disability or "superability" [2].

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Hypnogen

►Ambien (Zolpidem)

Hypnosis

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Definition

Hypnosis is a procedure involving suggestions for imaginative experiences that may entail alterations in memory, perception, emotions, thoughts and behavior. Hypnotic suggestions can be offered by another or by oneself, in self hypnosis. The experience of hypnosis is facilitated by "letting it happen," rather than "making it happen," and involves a wakeful alertness, focused absorption, attenuated critical rational functions, and diminished peripheral awareness. These are often accompanied by the experience of nonvolition; that behaviors and experiences "happen to me," rather than "initiated by me" [4, 5].

Description

Hypnosis has befuddled investigators for over two centuries, and attempts to explain its unusual phenomena have been instrumental in the development of seminal psychological concepts and practices. Hypnosis sits on the fault line of mind and body; a brief communicative exchange can cure warts, enable major surgery without pain, and improve healing of burns and wounds. Hypnosis also can alter basic psychological experiences that beg explanation; loss of a sense of volition, forgetting compelling events that just happened (amnesia), responding in unusual ways, previously suggested in hypnosis, but without awareness (post hypnotic suggestion). The use of hypnosis by physicians in the nineteenth century to treat physical ailments gave rise to the "talking cure," or psychotherapy, in the twentieth century, pioneered by Freud. Psychosomatic medicine, originating in the first decades of the twentieth century, was given impetus by earlier medical use of hypnosis. Unconscious processes, the object of speculation in the nineteenth century, were given empirical credibility by hypnotic phenomena, becoming a cornerstone feature in the theories of Freud, Janet and Jung in the early twentieth century, and introduced into experimental psychology by Hilgard in the mid-to-late twentieth century [1].

Although the name, hypnosis, is derived from the Greek word *hypno,* meaning sleep, and common hypnotic procedures invoke drowsiness, it is not a form of sleep. Wakeful alertness is one of its hallmark characteristics. There is also a long history of suspicion that people are strategically feigning responses; that there is no such thing as hypnosis. This, too, is untrue, as the nonvolutional experience of hypnotized individuals attests. Many fear that hypnosis involves the surrender of will, loss of control, or helpless domination by the hypnotist. In fact, individuals are co-participants who cannot be induced to perform acts that conflict with their values, and can independently choose to end their hypnotic involvement. Another longstanding misconception is that hypnosis can provoke superhuman feats of physical strength, perceptual acuity and memory recall. These, however, cannot be enhanced beyond that which can be achieved through non-hypnotic means, and in the case of memory, hypnosis may facilitate false recollections and memory

distortions. Finally, individuals vary considerably in hypnotic responsivity, which is a stable trait not related to any personality factors, including gullibility, conformity, suggestibility, and intelligence, save for a modest relation to absorption in imaginative involvements [1, 2, 4].

Hypnosis is effective for ameliorating acute pain associated with surgery, dental procedures, debridement of burns and wounds, and childbirth, as well as chronic pain accompanying cancer, tension headaches, irritable bowel syndrome and other chronic pain conditions. It is also effective for reducing nausea and vomiting preceding chemotherapy and treatment of some dermatological conditions. Hypnosis is also a useful adjunct procedure to cognitive behavioral treatment of phobias, anxiety disorders and insomnia [3]. Hypnotherapy with children has been particularly helpful in coping with painful medical procedures associated with the treatment of cancer and burns, and managing symptoms associated with chronic pain [5].

Relevance to Childhood Development

Hypnotic responsivity has been found to emerge around the age of five, reach a peak in early adolescence and slowly decline in the later adult years. This developmental trajectory has been assessed using adult scales of responsivity. The lack of responsivity found in young children is challenged by some who question the viability of adult-based measured that involve sophisticated cognitive and linguistic abilities that exceed the capabilities of young children, who fail, not because they are unresponsive, but because they don't understand the requests. Practitioners argue that young children are more easily engaged in play and fantasy, and if the procedures appropriately utilize these abilities, young children are better candidates for hypnosis than adults. Hypnotic procedures developed for young children in clinical settings are less verbally complex and more overtly engaged, closer to play therapy than the sedentary, cognitively complex involvement that is presupposed in the adult-based measures and procedures. Clinical reports suggest that such procedures may effectively address a host of medically related difficulties that confront young children [7].

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Hypoactivity

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Synonyms

Lethargic; Underactive

Definition

Less active than usual.

Description

Information regarding hypoactivity, or children being underactive, may be difficult to obtain as an internet search frequently leads to hyperactivity rather than hypoactivity. Hypoactivity may be due to a disease, physical limitation such as blindness or obesity.

Lethargy in children may be caused by an illness such as the flu or a chronic condition such as diabetes. If a normally active child becomes hypoactive or lethargic, a physician should be contacted to determine the cause.

According to a study conducted by [1, p. 107] children with various medical conditions may perceive certain exercises to be more intense than healthy children of the same age. Children with an abnormality such as a heart murmur may be hyposactive due to the presumption of illness. The reduction of activity may be based upon the perception of the physician's diagnosis rather than a directive that the child should not be active.

Obviously, disease may cause hypoactivity in children and adolescents and this may cause the child to be less physically active. Additional causes of hypoactivity may include: pain, fear of seizure or attack such as asthma, lack of opportunities to be active, or isolation (p. 108).

While many of the above reasons for hypoactivity may be valid, it is important that all children and adolescents achieve some type of physical activity as their physical conditions permit. As always, checking with the child's physician and asking for specific physical activities in which the child may engage is imperative.

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Hypothalamus

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Definition

The Hypothalamus is one portion of the Diencephalon that plays a vital role in nearly all aspects of motivated behavior, including feeding, sexual behavior, sleeping, temperature regulation, emotional behavior, endocrine function, and movement [4].

Description

The Hypothalamus, in combination with the Thalamus and Epithalamus, make up the Diencephalon. While as a functional hole, the Diencephalon energizes and sustains behavior [4], the hypothalamus is specifically entrusted with the regulation of nearly all aspects of motivated behavior, including feeding, sexual behavior, sleeping, temperature regulation, emotional behavior, endocrine function, and movement [4]. It is also essential to the general arousal of the nervous system [1]. The way in which the hypothalamus achieves these end goals is through its control of the Autonomic Nervous System, with its sympathetic and parasympathetic divisions, and its connections with the Pituitary gland that mediates the neural control of the endocrine system [2, 3].

Anatomically, the hypothalamus is a small, subcortical structure at the base of the brain, composed of subdivisions, or nuclei. Specifically, it is located in front of the midbrain, above the amygdala, and next to the pituitary gland it controls [6]. It forms the floor and part of the lateral wall of the third ventricle [5, 7].

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Hypotonia

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Synonyms

Floppy baby syndrome; Floppy infant syndrome; Infantile hypotonia

Definition

Hypotonia is defined as a decrease in muscle tone and usually strength, due to a congenital disorder, trauma or environmental factors.

Description

Hypotonia will present differently based upon the etiology and subsequent severity of the muscle flaccidity. Hypotonia is not a specific disorder, but mostly a symptom of a number of other disorders which cause deterioration of the muscle fibers [2, 5, 6, 11]. A child afflicted with hypotonia will present visually like a "rag doll" because their limbs and head appear to "flop" to their sides [3]. The child's head will hang to the sides or slouch to the chest or back because the muscles of the neck are not strong enough to hold the head erect. Upon picking up a child with hypotonia, the child might slip through the

grasp because the arm muscles do not keep the arms flexed. An infant suffering from hypotonia will have hyperflexibility in their limbs enabling them to stretch farther than normally possible [9, 10]. While not in every case, a majority of cases of hypotonia diagnosed in childhood at least partially remits, with muscle tone and controllable movement returning over time [9, 10].

The etiology of hypotonia can be difficult to diagnose. Many disorders which affect the central nervous system can be responsible for decreasing muscle tone and causing paresis. Hypotonia is usually a manifestation of a number of other disorders, with Prader-Willi syndrome being the most common cause of hypotonia in children [11]. The most common cause of hypotonia disorders is congenital defects including genetic disorders such as: Prader-Willi syndrome, Cerebral Palsy, Down syndrome, Marfan's syndrome, Tay-Sachs disease and others [1, 4, 7, 8]. Other causes of hypotonia can occur through acquired disorders, infections, metabolic disorders and trauma. Traumatic brain injuries in children, occurring because of automobile accidents and Shaken Baby syndrome, are common occurrences in children which can lead to hypotonia.

Treatment of hypotonia typically centers on finding, diagnosing and treating the underlying disorder which would alleviate the hypotonic symptoms [7, 9]. Unfortunately, accurate diagnosis in some cases can be difficult to impossible; therefore alternative treatments are sometimes necessary. Physical therapy is most prescribed to treat the lack of movement and strengthen what muscle may be left. Occupational therapy is utilized to help the patient live independently and cope with the disorder into adulthood if the hypotonia does not dissipate [9]. In more severe cases, speech therapy is necessitated to help the patient swallow, feed themselves and speak [9].

Relevance to Childhood Development

Long-term impairment for the development of the child can be difficult to determine due to the plethora of etiologies of the disorder. The hypotonia itself usually has a good prognosis with early diagnosis and treatment through occupational and physical, only if the underlying pathology does not interfere with recovery [2, 9]. Therapy is mostly concerned with helping the patient compensate for the loss in neuromuscular strength in order to function independently.

Due to the loss of muscle control and coordination at key critical periods in development, the typical hypotonic child will experience delays in reaching developmental milestones [2, 6, 9, 10]. Because of the general paresis, sometimes paralysis of the muscles, the child will have the most difficulty reaching motor milestones such as rolling over, sitting, crawling, standing and walking [9]. The hypotonic child will also have impairments with language due to muscle incoordination; which can lead to, or exacerbate, learning and attention problems. Although hypotonia does not affect intellect, other disorders affecting cognitive abilities may surface due to the disorder. However, hypotonic children are only at a higher risk for learning and attention problems, not all of these children will develop such difficulties [3, 5, 6, 8, 9].

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I.Q. Assessment

►Creativity Assessment

Iconic Memory

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Synonyms

Information persistence; Sensory register; Visual persistence

Definition

The short visual sensory trace of a briefly presented visual stimulus, lasting several hundred milliseconds after removal of the stimulus. Often described as a "fading" image, iconic memory is differentiated from short term visual memory by a larger storage capacity and by it's disruption by an immediate presentation of a contrasting or intense visual stimulus.

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Icterus

►Jaundice

Id

Definition

The id is part of Sigmund Freud's three part psychic apparatus (id, ego, and superego) in his psychoanalytic theory of development. In Freud's theory, the id represents the mind's unconscious and unorganized basic drives, and primarily seeks to avoid pain by increasing pleasure.

Description

Upon birth the id is formed and infants are driven by instincts and seek to have their basic needs met. The basic drives that the id controls are food, water, and sex. The id is selfish, moral-less, infantile, illogical, primarily sexual, without sense of time, and is completely ruled by the pleasure-pain principle. As the child develops, the id comes into conflict with the ego (reality principle) and societal constraints.

Identical Twins

►Monozygotic (MZ) Twins

Identification

►Projection

Identity

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Synonyms

Personal identity; Reference group orientation; Sense of self; Social identity

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

The term identity is derived from the Latin *identitas*, which means "the same." This notion of sameness or similarity, however, falls short of providing comprehensive utility or explanation, given the myriad implications of identity. For example, fictional literature uses emotion-laden words or contexts such as loneliness, or alienation, to convey identity. That is, by emphasizing the emotional or affective value of one's sense of loss or absence of identity, the concept itself is conveyed. As a historian, Gleason [3] provides a "semantic history" which informs us that for a half century after psychology's debut, identity remained virtually absent from the social science literature. Today, a cursory search of a typical database generates countless references, including those focused on identity in a myriad of contexts such as academics, consumption, dance and the arts, success and failure, survival, and so on, ad infinitum.

Many would agree that Erik Erikson's conceptualization of identity has impacted the social sciences in a way this is akin to the impact that Freud has had on the discipline of psychology. Even his understanding of the term, however, was, in his own words, as "something vague and hard to grasp" [3] and he saw the concept as separate and apart from simply answering the question, "Who am I?" In articulating the complexities of defining identity, he emphasized that identity development is an integrative process. This process is viewed by theorists as premised by notions of roles and the ways in which one makes meaning of their world. As such, one's overall self-concept can be viewed as a gestalt, comprised of their unique personality attributes (personal identity) and their repertoire of orientations to various reference groups (social identity). It is this idea of group and role(s) identification that frame a nexus between general identity and social identity.

From a developmental perspective, the self-concept evolves first from infancy through pre-adolescence, where the drafting and designing of identity attributes and components begins. As these attributes and components evolve, mature and take hold, the child becomes more self-reflective, which is a powerful, fundamental quality. It is here that the integrated self [2, 7] begins. Setting aside discussion of genetic predisposition, we see that one's environment provides for and allows the genesis of their being, i.e., interests, preferences, and the like, which over time becomes particularistic.

As a person develops the capacity to self-reflect, her/his sense of individuality as well as their "group-groundedness" becomes more apparent. Each of many personal identity attributes and each of many social identities become integrated as the person's composite "identity." Issues of psychopathology aside, most people, by late adolescence, experience a phenomenological wholeness, or integrated self. That is, through reflexivity or awareness that one has certain capacities, the individual begins to connect the dots (albeit not necessarily in a linear fashion) that lead to a relatively stable interpretation of self.

The Person and the Situation

One of the most challenging issues for conceptualization and assessment of identity is that of situational context. A basic tenet of the sociopsychological approach is, after all, giving primacy to the social context of one's situation, in order to understand, predict, and potentially alter behavior. Typically the result of symbolic or environmental cues, situational context influences one's cognitive processes of meaning making which in turn impacts their behaviors and experiences.

Among the virtually infinite array of examples for how identity may be situationally contextualized are issues such as political behavior. For instance, one researcher [5] cites examples including "leadership, nationalism, consensus formation, social protest, stereotyping, and so on" (p. 825) and points to the increasingly pertinent implications for voter decision-making and identification with a political party as logical applications to be examined.

Situational context embeds other important conceptual issues, including salience and centrality. Identity salience (the extent to which an identity is a relevant aspect of one's self-concept at a particular moment in time), for example, is systematically examined in a variety of contexts. A particularly robust exemplar is ▶stereotype threat research [11, 12], wherein a person's racial, gender, or other social identity is made salient and such salience serves to negatively impact performance. Numerous publications highlight this robust approach to exploring how and why, for example, an Asian American woman might perform relatively well on a math test when her ethnic identity is made salient, and more poorly when her gender identity is highlighted [10]. Unlike salience, centrality typically implies a stability less affected by temporal or contextual factors. Using race as an identity case in point, racial identity centrality refers to the degree to which a person perceives themselves with respect to race. With respect to relevance, it is important to note that a basic premise in much of identity research – particularly research on social identity – is that identity is assumed to consist of both situationally determined (salience) and stable (centrality) properties.

Social Identity Theory

Social identity is a robust concept that helps us to predict, explain and possibly alter social behavior. It is a medium through which we can internalize the degree to which our group is similar to or different from other groups. The most cited definition of social identity is "The individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of the group membership" ([13], p. 292). Henri Tajfel's social identity theory [14] is largely about intergroup processes, such as discrimination and cooperation, and Tajfel offered that one's group or social identity serves to maintain and enhance an individual's self-esteem. A number of identity researchers also emphasize that at the core of social identity is the notion of the individual's identity management strategies and how, when, and with whom such strategies are implemented.

Reference Group Theory

Like social identity theory, reference group theory (RGT, [6]) is about intergroup relations. The RGT approach to social identity is a phenomenological perspective that makes conceptual room for the target to exercise agency with respect to how they are socially delineated. This approach allows a particular comprehension of the range of identity perspectives one finds in a large sample, a range not limited to the social categories typically assumed, assigned or ascribed by the larger society. So it is that if, for example, a person born in the United States is nominally Black, one of her/his ostensible group or social identities is that of "Black" or "African American." This is, at least initially, a socially ascribed identity and may or may not be a self-ascribed identity. Such an individual may in fact choose to identify primarily as "American," or "gay," or "Christian," or as "a psychologist," and the fact that he/she is nominally Black may be a less meaningful or central personal category.

There is a rather broad consensus that inherent relationships exist between social identity and group membership, subjective well-being, political affiliation and the like. The process by which one makes meaning of and enacts their singular and multiple social identities, however, tends to be less clear. Factors such as psychohistorical antecedents and temporal motivations, the difficulties of measurement, and the fragility and tenuous nature of identity conspire to make a consensual theoretical framework and assessment strategy elusive.

By adolescence, people can provide, through interviews or surveys, fairly reliable and valid insights into the personal identity and ▶reference group orientation or social identity attributes that make up their self-concept. Erikson's dominant psychosocial approach to identity was heavily influenced by the work of Freud. Erikson viewed identity as something a young, developing person has "more or less of," and that they advance across a continuum of identity that must be negotiated via exploration and commitment. The Eriksonian theoretical model, like most process models, represent a stage or process approach to "a general pattern of development from a diffuse stage of psychological immaturity to more advanced and well-formed stages of maturity" ([1], p. 11). James Marcia operationalized Erikson's identity development theory. Marcia's [8] *Identity Status Interview* assesses an individual's across set of distinct stages (diffusion, foreclosure, moratorium, achievement) that need to be resolved.

In terms of social identity measurement, we have known for a long time that because of its complexity and diversity, identity often cannot be assessed simply in a dichotomous fashion, as if one's political identity is as simple as political party membership, or that their racial identity is no more complicated than being Black or White. For example, although we study Jewish identity, Black identity, and female identity, there are various ways of orchestrating or having a sense of being Jewish or Black or female, as well as being Jewish *and* Black *and* female. Examples of some innovative assessments strategies include a scales developed to measure, simultaneously, personal and social identity [9]. These constructs are operationalized in general terms, i.e., focusing more on *general* centrality and stability, and less on the influence of situational context. Another promising strategy [4] uses a reference group approach as an identity assessment procedure. While not without inherent challenges, such innovative tools have yielded impressive results across multiple studies.

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Identity Crisis

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Synonyms

Internal conflict with one's views of the world; Struggle with self identity

Definition

Developmental status based on an adolescence struggling with them self identity and their self perception of themselves in the world (e.g., occupational, religious, political).

Description

This is a term often associated with Erik Erikson and James Marcia when describing an adolescent period of challenging views of themselves and the world they live in. The struggle is in developing a coherent definition of self and grappling with "who I am, where I am going, and how do fit into the larger worldview." The identity crisis includes cognitive development, familial relationships and relational cultural issues.

Relevance to Childhood Development: This is a time of tumult and exploration that if negotiated deftly can lead to psychological well being, high self-esteem, and flexibility in the world.

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Identity Diffusion

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Synonyms

Apathetic; Avoidance; Overwhelm

Definition

Phase or status of individual who has not resolved identity issues.

Description

This is a phase or status defined by James Marcia describing the avoidance, apathy and overwhelm often associated with identity development. The adolescent is avoiding or lacks the volition to explore alternatives of self in the world. Example of high school senior experiencing identity diffusion "I haven't really thought much about what I want to do when I get out high school."

Relevance to Childhood Development

This is part of the identity development process that is characterized as avoiding uncomfortable feelings and exploration in the world. The result retards identity development and psychological adjustment.

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Identity Foreclosure

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Synonyms

Characterized by commitment to something without personal exploration; Hold fast to another's view

Definition

State where an individual has accepted their parent's or authorities' views and has not thought of other opinions or views.

Description

This is a phase or status outlined by James Marcia characterizing an avoidance of identity crisis by adhering to parental or authorities' views or plans of the future. What is lacking is individual volition in investigating and exploring their own sense of identity and preferences in life. This lack of crisis and exploration leads the individual to commit to identities suggested to them by others. Example of a foreclosed identity: "My parents are physicians and always wanted me to be a physician also. I am enrolled in pre-med in college."

Relevance to Childhood Development

Identity foreclosure is a commitment to something without personal exploration of self. This often results in delays of optimal psychological health and self esteem.

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Identity Formation

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Definition

Identity formation has to do with the complex manner in which human beings establish a unique view of self and is characterized by continuity and inner unity. It is therefore highly related to terms such as the self, self-concept, values, and personality development. The goal of personal identity formation is to establish a coherent view of self through the process of normal human development. Abnormal development could be viewed as the establishment of an incoherent self and characterized by discontinuity or the lack of inner unity. Although the benchmarks of identity formation are most easily observed at the adolescent and adult levels of development, a fledgling identity for a person develops during his/her childhood experiences. At the core of identity formation is the human personality, but psychologists have also employed this term to speak of subcategories such as racial, ethnic, social class, gender role, spiritual, and sexual identity. The term identity formation implies both a process and end-product orientation. In other words, how an identity is established becomes important, as well as what characteristic form the identity takes. The process elements are described by developmental theories. Research studies have attempted to outline what identity formation can actually look like. For example, identity statuses such as identity achieved, foreclosure, moratorium, identity diffusion or confusion, and negative identity have been used by theorists and researchers to denote healthy/unhealthy personality outcomes (see [5]).

Description

Erik Erikson (1902–1994) was a psychoanalyst and the most prominent architect of the psychosocial construct of identity formation (see [1, 2]). He accepted many of the ideas proposed by Sigmund Freud, rejected or modified some of Freud's premises, and explored different areas of personality development as compared to Freud (identity rather than sexuality). For example, Erikson accepted the ideas of a dynamic interaction of the three parts of the personality proposed by Freud (id, ego, and superego) and conscious/unconscious motivation for behaviors. Erikson advanced the study of personality by drawing upon much of Freud's work and reinventing a personality theory that both draws upon Freud's model and offers new insights. Readers are cautioned regarding conceptualizing Freud's psychosexual theory and Erikson's psychosocial theory as totally distinct and unrelated perspectives, for oftentimes it is what these two great thinkers shared in common that is most crucial in helping us understand identity formation. For example, Erikson is known as an ego psychologist because of his focus upon the "ego" functions (logical/rational decision making, defense mechanisms, etc.) in Freud's personality model. Thus Erikson paid somewhat less attention to the "id" and "superego."

According to psychosocial development and the epigenetic principle, as a human being moves through the lifespan the most salient issues center around the person's relationships with others, identity formation, and how the self contextually develops in the cultural milieu. In this way, we can see that Erikson's theory contains elements of biology (genetic endowment), psychology, sociology, and anthropology. There is also a strong interactionist element in Erikson's psychosocial theory, since each issue of biological heritage, expressions of self, interactions with others, and cultural setting can influence the other issues and the personality of the developing person.

The formation of a person's identity is central during the fifth of eight stages of psychosocial development. All 8 stages extend over the entire lifespan and comprise the centerpiece of Erikson's theory. Although identity formation is the major task of adolescence, Erikson's developmental theory implies that the origins of identity lie in critical childhood experiences (earlier stages) and that the re-organization of identity will take place during later stages of psychosocial development and throughout the lifespan. As with the other psychosocial stages, Erikson juxtaposes a relatively mentally healthy ego state (identity achieved) with a less mental healthy state (identity diffusion). Tension is created at different points in the lifespan regarding such healthy versus unhealthy decision points at each stage. Identity achieved involves the experience of a psychosocial crisis (a personal reflective and reorganizational circumstance caused by a challenge in life) with exploration components that result in commitment. The outcome is a life characterized by personally chosen values, the ability to take calculated risks and make good decisions under stress, and the capability to adapt to change without sacrificing individuality, fidelity, and integrity.

Erikson saw adolescence as marking the end of childhood. This transitional benchmark implies that a person takes what he or she has learned from childhood in order to chart a course for the future as an adult in society with new obligations and responsibilities. He claimed that "identity formation. . . begins where the usefulness of identification ends" ([2], p. 159). Adolescence changes the playing field in the biological domain (physical/sexual maturity), psychological domain (cognitive/emotional maturity), social domain (interactions with others), and cultural domain (expectations for membership and taboos) and demands new survival tools for the human personality.

Children consciously and unconsciously adopt beliefs espoused by parents and significant others through the identification process. Modeling behavior is similar except for the fact that imitation or modeling is a much more conscious process. Identification offers a healthy learning tool during a period of development whereby children can reduce stress, please others, and survive in a complicated world. For example, children might incorporate behaviors, values, and rituals observed in childhood into personal ways of doing things without being able to think critically about the origins, meanings, or implications of such events. Childhood identifications cannot be somehow summed up and collectively employed by a mentally healthy adult personality. Therefore, such unexamined identifications are of limited usefulness during adolescence and later adulthood.

Erikson [1] stated that ego identity "is the accrued experience of the ego's ability to integrate these identifications with the vicissitudes of the libido, with aptitudes developed out of endowment, and with the opportunities offered in social roles" (p. 228). It is therefore suggested that a mentally healthy adult depends upon the reinvention of his/her self and this ideally starts around adolescence. Conscious ego strength allows a person to explore the legitimacy and value of childhood identifications for possible inclusion in a newly emerging adult personality. Ideally, some of these identifications might be maintained (if deemed personally valuable); others deleted (to the extent this is possible, given that they may be under the grip of unconscious processes); and still others modified (in order to provide personal relevance and ownership as society changes). The human potential for modifying beliefs about the world that were etched in childhood as identifications allows the personality to adapt to changes in society and within the person over the lifespan.

In this manner, young people grow into healthy adults who are, in certain ways, like their parents. But they can also individuate themselves in order to become unique individuals. In what appears to be a paradox, they ideally maintain a portion of their parents' views and historical legacy while at the same time establishing themselves as unique individuals separate from their parents and at odds with certain cultural stereotypes or expectations. This becomes the crux of healthy adolescent identity development. Herman [3] offered a transmission and development of values theory to understand how Erikson's theory nicely fits with other major theories as an explanation of adolescent development. The foreclosure (unhealthy) ego status where commitment occurs without crisis or exploration reminds us that healthy identity formation is not inevitable or an outcome experienced by all adults. Hoare [4] further suggested that identity achievement should include the ability to work from within a set of personal cultural values while at the same time being able to accept and include others from cultures that hold differing values.

Relevance to Childhood Development

Although identity formation is considered the hallmark of adolescence and not childhood, the childhood period of the lifespan is viewed as absolutely critical in terms of identity formation. Childhood offers the necessary, but not sufficient, foundation for a mentally healthy adolescence and adulthood. Erikson's theory suggests that a healthy adolescent and adult identity depends upon the further development of values and beliefs transmitted during childhood. Psychosocial development offers a built-in possibility that in later stages of development, the person may be able to overcome, or at least ameliorate, even the negative impact of maltreatment and trauma that may have occurred during childhood. This offers some realistic hope for all who survive childhood, while not denigrating the importance of people's experiences during childhood and their discovery of the trends and expectations of their society.

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Identity Formation and Development

►Bicultural Identity

Identity Moratorium

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Synonyms

Active exploration without achieving identity

Definition

A phase or status in which a person is actively exploring alternatives towards solidifying a sense of identity.

Description

This is a phase or status outlined by James Marcia characterizing exploration and progress towards identity achievement. The individual is currently experiencing an identity crisis and is looking for answers of the questions that have been raised. These questions are usually occupational, relational and cultural and the individuals place within these domains. Example of identity moratorium: "I have been spending lots of time analyzing my occupational interest inventories that I took at school. There are so many opportunities and I have so many questions. One day I want to be an attorney the next day a chef. I guess I will have to continue talking to people and doing research to figure out what I want to do."

Relevance to Childhood Development

Identity moratorium is an active identity development stage characterized by exploration or crisis without a commitment to a solid sense of self. Proper guidance can help the individual move towards the next step of identity achievement.

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Identity Status

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Definition

A term originating from the psychosocial theory of development that describes adolescents' exploration of and commitment to values, beliefs, and roles.

Description

Erik H. Erikson's psychosocial theory proposes that ego development occurs throughout the lifespan in a series of stages (*trust vs. mistrust, autonomy vs. shame and doubt, initiative vs. guilt, industry vs. inferiority, identity vs. role*

confusion, intimacy vs. isolation, generativity vs. stagnation, and *integrity vs. despair*). It suggests that ego identity continuously changes based on our experiences and interactions with others and that specific challenges (or crises) arise at different points in life. During these times of crises old values and choices are re-examined. The outcome of each crisis leads to a commitment to a certain value, belief, or role [1].

James E. Marcia's contribution to psychosocial theory elaborates on stage resolution and, in particular, the *identity versus role confusion* (or *diffusion*) stage that occurs during adolescence. Erikson's theory proposes that adolescence is marked by a crisis between identity and confusion in life domains such as work, politics, religion, and gender roles. Successfully navigating the conflict will result in an ability to stay true to one's self, while failure will lead to confusion and low self-esteem. Marcia extended this idea by developing the Identity Status Interview [2]. He proposed four possible stages, or statuses, based on his findings, that mark adolescents' navigation through the *identity versus role confusion* stage: *identity diffusion, identity foreclosure, identity moratorium*, and *identity achievement.*

- Identity diffusion is characterized by adolescents who have not yet experienced a crisis of identity and have not committed to an identity. These adolescents may eventually plot a course toward moratorium and achievement, resign to a foreclosed identity, or maintain the diffused status over time.
- Identity Foreclosure is characterized by adolescents who are committed to specific beliefs about their identity without going through a crisis. These adolescents have not considered an identity for themselves outside of the identity of their youth or outside the identity desired by others.
- Identity moratorium is characterized by adolescents who are experiencing a crisis. They are in the process of exploring their identity. They have not yet committed to any future path, but are open to, thinking about, and exploring possible options. Adolescents in moratorium are usually on the path to identity achievement.
- Identity achievement is characterized by adolescents who have gone through a crisis and made a commitment. These adolescents have explored identity options and, based on that exploration, have committed to the specific beliefs and values they hold [3].

Marcia is most widely known for his work on identity statuses in the *identity versus role confusion* stage. However, identity status work has extended into other psychosocial stages as well. Marcia and colleagues have proposed that within each adult stage people may cycle through moratorium and achievement identity statuses. They suggest that while some parts of our identity that are formed in youth remain throughout our lives, much of our identity changes through the course of life experiences. When experiences are discordant with our beliefs we may shift from an identity achievement status to an identity moratorium status. This exploration and integration of our experiences may lead to a revision of beliefs. This *moratorium-achievement-moratorium-achievement* cycle is represented by the acronym MAMA [4, 5].

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Identity Styles

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Definition

Identity style is a theoretical construct used to refer to the manner in which individuals construct and manipulate their identities [3].

Description

Identity exploration often begins in adolescence. It was Erick Erickson who argued that adolescence is a period of psychosocial moratorium: an opportunity for adolescents to forestall adulthood by exploring different identities in order to select a stable construct by which the self can be defined. For adolescents enrolling in college, matriculation affords a period of exploration that may not be available to those whose next destination is not a college. Erickson's theory of identity development is based on his psychosocial model of human development. Successful resolution of the adolescent phase is based on successful ego resolutions at the earlier stages of development [4].

Marcia's Model

Though Erickson is ultimately the father of identity research, it was James Marcia who operationally defined his theoretical construct. Marcia's research focused on the outcome of the identity process [2], arguing that differences in identities could be accounted for by two processes: commitment and exploration. Marcia defined commitment as personal investment, sacrifice, sustaining interest in values, goals, and ideals [1]. Additionally, exploration was defined as involvement in a period of engagement and searching for acceptable goals, values, and ideals, with the intention of making a commitment. Marcia argued that commitment provided the motivation to adhere to one's values whereas exploration provided the process by which the construction of one's identity could be established. Marcia's concept of identity is often represented as two orthogonal dimensions to denote four identity styles which incorporate varying levels of commitment and exploration: diffused identity, foreclosed, moratorium, and identity achieved [1].

Diffused identity outcome is characterized by low exploration and low commitment. An adolescent who has a diffused identity is said to have not explored any particular social or personal goals and has made no commitment to any values. Diffused identity state is often referred to as an unhealthy identity state and is correlated with conformity to peer influences. A diffused identity is usually found very early during the identity exploration phase [4]. In addition, numerous studies have suggested a relationship between this identity state and psychological states, or mind-sets that prevent or limit a healthy adaptation to fulfilling personal and social goals [1].

Individuals with low exploration and high commitment are said to be foreclosed in their identity style. Adolescents in this state experience no identity crisis. They have yet to explore acceptable goals, values or ideas and often prematurely commit to an occupation or ideology based on the suggestions of others [4]. There are many different types of foreclosed adolescents and these individuals often live quiet and orderly lives [1].

Adolescents who experience high crisis (i.e., exploration) and no commitment are said to be in a moratorium state. These individuals are intensely exploring acceptable goals, values, and ideas but have yet to commit to any of the selected goals or values. Erickson suggests that a moratorium youth is doing exactly what typical youths tend to do: he or she is actively seeking out alternatives, with the goal of finding a compatible value system to integrate in their construction of self [1, 4].

The final identity outcome of Marcia's model is called identity achievement. An achieved identity is marked by high exploration and high commitment. After exploring different social identities, the adolescent commits deeply to a particular ideology and career path. The positive outcome of identity development and the successful resolving of the crisis at this stage of development lends itself to the positive outcome of identity achievement [1, 4].

Berzonsky's Model

While Marcia's identity development is outcome focused, current theories of identity style focus more on Berzonsky's cognitive model. Berzonsky argued that identity development should be conceptualized through a socio-cognitive perspective and accordingly developed a process-oriented model that emphasizes the process of exploration. Berzonsky argued that during the exploration phase, individuals are often coping and adapting to the crises that are invoked in creating and constructing an achieved identity. Through these social cognitions, the adolescent perceives and processes reality. In this process-oriented model, Berzonsky identified three process orientations: information, normative, and diffuse/avoidant [1].

There are strong parallels between Berzonsky's and Marcia's models of identity styles. There are similarities between informational and moratorium-achievement, normative and foreclosure, and diffuse-avoidant and diffusion identities [1]. Information-oriented individuals deal with identity issues by actively seeking out and evaluating values, goals, or opportunities before making commitments. When confronted with information that is different from their perceptions of self, information-oriented individuals often revise their self-conceptions [2, 5]. This orientation has been found to be associated with effortful self-exploration, introspection, self-awareness, problem-solving, coping styles, and cognitive complexity. In addition, this orientation is positively related to effective life management skills and mature relationships with others [3]. Adolescents with this process orientation were also found to perceive their parents as authoritative and engaging in open discussions. Additionally, this style was positively predicted by adolescents who perceived their parents as warm, involved and responsive to their needs in times of stress (i.e., parental support). However, the style was also related to adolescents who perceived their parents as controlling often using manipulative and intrusive strategies (i.e., psychological control) [5].

Normative-oriented individuals rely on the social norms and expectations of significant others when confronted with identity crises. These individuals rigidly

adhere to the existing identity structure, into which they assimilate all identity relevant information. Due to their rigid adherence to the accessible identity structure, the probability of cognitive distortions is increased. This identity style has been associated with intolerance for ambiguity and a need to maintain structure and closure [1]. Furthermore, Berzonsky noted adolescents with this copying style perceived their parents to be authoritarian and found their family lacking in expressiveness. Unexpectedly, this identity style also related positively to authoritative parents and found family relations to be trusting and cohesive [5]. Furthermore, this style was positively predicted by parental support and adolescents' perception of their parents as providing them with clear expectations for behaviors and monitoring behaviors (i.e., behavioral control) [5].

Diffuse-avoidant individuals are similar to Marcia's diffused identity state. These individuals avoid personal issues and delay decisions until environmental demands dictate their behavior, which often results in a fragmented identity structure. This fragmented state is also a function of situation specific identification by which individuals define themselves mainly in external terms (i.e., my reputation, my popularity). Diffuse avoiding adolescents have been found to engage in procrastination, embrace an external locus of control, and engage in emotional-focused coping behaviors [1, 2]. This style was found to relate to authoritarianism and permissive parenting styles. In addition, family environments were often characterized by lack of expressiveness and communication [5]. Additionally, this style is positively predicted by parents who exert psychological control and negatively influenced by maternal behavioral control [5].

Identity Styles and Minorities

A discussion of identity styles would be incomplete without paying particular attention to racial identity development, which is one aspect of identity exploration for people of color. William Cross Jr. and Janet E. Helms are often respectively cited in the exploration and examination of Black and White racial identity styles. Furthermore, Cross' model is often used as the framework in exploring other racial identities. Both Cross' and Helms' models are presented as stage-like theories. However, their models are not linear and individuals recycle through the stages at different points in the life cycle.

Cross' model is operationally defined as a five-stage model: pre-encounter, encounter, immersion/emersion, internalization, and internalization/commitment stage. The pre-encounter stage represents the identity that individuals are born with. This stage is highly influenced by parents and social upbringing. A person in this stage may not be aware of racism and may have internalized negative racial stereotypes. The encounter stage of identity is characterized by an event that forces the person to acknowledge racism. It is during this stage that the individual begins to identify with his or her race. This event also encourages the individual to seek out experiences to support his or her developing awareness of race identification. This stage is referred to as the immersion/emersion stage. During this stage, the individual avoids symbols of Whiteness and surrounds himself/herself with symbols of his or her race. At the end of the immersion stage, the individual emerges with an internalized identity. During the internalization phase, the person is secure with their racial identification. A person is this stage is more open to joining with other racial groups due to a strong sense of racial identity. The final stage of the model is the internalized-commitment stage where the individual sense of racial self is grounded and there is a general sense of commitment to the concerns of people of color and social justice issues in general [6].

Helms' concept of White racial identity consists of six stages: contact, disintegration, reintegration, pseudo-independent, immersion/emersion, and autonomy stage. In the first stage of the model, an individual lacks an awareness of racism and one's own White privilege. Additionally, the person internalizes negative stereotypes about persons of color. During the disintegration phase, the lack of awareness of racism is replaced by discomfort, shame and/or guilt as individuals begin to become aware of racism. At the end of this stage, individuals attempt to help other Whites see that racism exists. During the reintegration stage, a person's desire to be accepted by his or her group leads to a reshaping of beliefs that are more accepting of the group, which in turn may lead the individual to be more accepting of racism. Helms argues that individuals may become stuck at this stage if they can avoid contact with people of color [6].

The fourth stage (i.e., pseudo-independent) is characterized by an abandonment of the belief in White superiority but may unintentionally perpetuate the status quo. Helms argues that the person may feel alienated from Whites and rejected by people of color. It is at this stage that individuals seek out antiracist White allies. During the immersion/emersion stages, a person searches for a new and comfortable way to be White. The person works to replace myths and stereotypes with accurate information about what it means and has meant to be White in America. The final stage of the model is the autonomy stage. In this stage, a newly defined sense of Whiteness energizes one's effort to confront racism in

daily life. A person in this stage is often open to new ways of thinking about race [6].

In summary, identity style is a concept used to define individuals as they interact with the world around them in hopes of creating and maintaining an achieved identity. It's a process by which information is manipulated in seeking one's values, goals, and ideals. Although identity is often presented as a stage like theory, individuals tend to recycle through the stages at different times during their life cycle.

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Identity Versus Role Confusion

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Definition

As articulated by Erik Erikson, Identity versus Role Confusion is the fifth of eight stages of psychosocial development that take place between the ages of 12 and 19. During this stage adolescents need to develop a sense of self and personal identity. Success leads to an ability to stay true to oneself, while failure leads to role confusion and a weak sense of self. In the latter phases of this stage, the child develops a sense of sexual identity.

Description

Erik Erikson explains eight stages through which a healthy developing human should pass from infancy to late adulthood. In each stage the person confronts, and hopefully masters, new challenges. Each stage builds on the successful completion of earlier stages. The challenges of stages not successfully completed may be expected to reappear as problems in the future.

The Identity versus Role confusion (or diffusion) stage is characterized by the adolescent question of "Who am I," during which time they are conflicted with dozens of values and ideas of who they should be and what they should think. The adolescent challenge is to establish a sexual, political, moral, religious, and vocational identity that is mature, stable, and consistent. Rapid physical and psychological changes assure that virtually nothing is stable and consistent and yet we must merge from this period of turmoil with a clear sense of who we are, what we believe in and what we want to do with our lives.

Gaining independence of identity and dealing with physical and hormonal changes is stressful. Our inner unrest may lead to rebelliousness, impulsiveness and outer turmoil. Peers provide security and role models. Interaction and communication give us the opportunity to discover ourselves as adults rather than as our parents' child. According to Erikson, we may achieve a clear identity, become confused and apathetic, find a negative identity, or foreclose early and take on an identity given by others.

The adolescent identity crisis involves developing values and beliefs about many areas of social, political, religious, sexual and career factors. It involves an inner and outer struggle to consider the many alternatives and choose a belief system, friendships, career and way of life we can be comfortable with on our path in life. The adolescent has entered into the exciting and confusing cognitive development stage of formal reasoning, where one can attempt to consider many alternative paths and compare and contrast possible futures.

Adolescents tend to become "egocentric" and self-focused in their search for truth, believing that they know so much more than their parents or any other generation previously living on the planet. Their logic fails in areas of egocentric thought such as "It cannot happen to me – whether it is getting pregnant or getting oneself in a car accident" or whether it is in egocentric thinking that everyone is noticing that one has an acne blemish. They are "always on stage" with an "audience" and needing to establish their own views, they are quick to reject the views of their parents.

Peer groups often give adolescents a temporary identity and they often form "cliques" in high school to bolster their lack of a strong personal identity. For example, peers

become critical in establishing an identity and girls spend endless time on the phone and in the bathroom trying on new selves and searching to become comfortable with who they are. They consult their peers, teen magazines and teen idols for their values and seem to often reject the values of their parents, a critical stage in establishing their own personal identity. Often college can serve as a "moratorium," a safe place to continue the adolescent identity struggle to find the self. Students often do not feel the pressure to "commit" to marriage or even to a major and do not have to settle down to a job, a family and a career that tends to establish their identity. College students in the teens and early 20s may take another 4–8 years of school to explore many options for establishing a firm identity in the world. This can be a very good thing as the human lifespan is much longer in the new millennium and the search for self is a critical stage in development.

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Idiot Savant

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Synonyms

Autistic savant; Savant syndrome; Savantism

Definition

A person with a developmental disability and an area of genius or brilliance.

Description

Idiot savant is the term used to describe a person with a developmental disability (e.g., autism, mental retardation) with an advanced skill, often in mathematical and memory abilities [1, 2]. Approximately 10% of individuals with autism are idiot savants. Common abilities are remembering the days of weeks of dates from the distant past (e.g., being able to state that October 21, 1963 was a Monday), recalling long strings of numbers, and performing complex musical compositions after only one exposure.

The "idiot" portion of the term is based on use of the term in the medical community in the late nineteenth and early twentieth centuries to refer to individuals with IQs less than 20. As this term is no longer used, "autistic savant" and simply, "savant," are terms more in use today.

Although savantism can be genetic or acquired, the cause and neurological basis are unclear.

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IDM

►Juvenile Diabetes

IEP

►Individual Education Plans

Illegal Drug Use/Abuse

►Illicit Drug Use in Adolescence

Illegal Substance Use/Abuse

►Illicit Drug Use in Adolescence

Illicit Drug Use in Adolescence

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Synonyms

Illegal drug use/abuse; Illegal substance use/abuse; Illicit substance use/abuse

Definition

Illicit/illegal: Unlawful
Drug:

1. A substance other than food intended to affect the structure or function of the body use.
2. Often an illegal substance that causes addiction, habituation, or a marked change in consciousness.

Addiction: Compulsive need for and use of a habit-forming substance (as heroin, nicotine, or alcohol) characterized by tolerance and by well-defined physiological symptoms upon withdrawal; *broadly*: persistent compulsive use of a substance known by the user to be harmful.
Limbic system: A group of subcortical structures (as the hypothalamus, the hippocampus, and the amygdala) of the brain that are concerned especially with emotion and motivation.
Prefrontal cortex: The gray matter of the anterior part of the frontal lobe that is highly developed in humans and plays a role in the regulation of complex cognitive, emotional, and behavioral functioning.

Description

Illegal drug use refers to the use of substances that are obtained and used without a prescriber's permission by a person between the ages of 12 and 21 for purposes of altering their mood, consciousness and sensorium.

Relevance to Childhood Development

Brain development does not reach full "adult" capability, or completion, until approximately age 24 or 25. Therefore the brain is an organ that is still in the process of growing, changing and developing during adolescence. Specific areas of the brain that are immature during the adolescent years are the nucleus accumbens, the limbic centers and the prefrontal cortex. These areas of the brain are implicated in pleasure, reward and impulse control. The prefrontal cortex is involved in what scientists call "executive function."

Brain Function

Components of executive function include memory, planning and decision making. In other words the prefrontal cortex is involved in remembering consequences of actions, deciding whether or not a person wants to experience certain consequences and then making a plan of action based on consequences. The prefrontal cortex in essences weighs out risks/benefits of decisions and chooses between actions/behaviors.

The nucleus accumbens contains reward areas in the brain. This area of the brain usually "fights" with the prefrontal cortex in making decisions in the adolescent. This is due to the immature connection between the two areas. The nucleus accumbens is very strong in "GO!" function being "pleasure oriented" and therefore tends to over-ride the "STOP!" function of the prefrontal cortex. This immaturity explains why many adolescents like to engage in activities that provide rapid or immediate gratification such as computer games, roller coasters, fast cars, text messaging, and drug/alcohol experimentation.

Brain Damage

The adolescent brain may be more resilient to toxins due to its youth and continued development. However research shows that adolescents who are heavy users of alcohol have much more difficulty in school learning new skills and new material. This is due to the effect of alcohol on the specific area of the brain responsible for memory, the hippocampus. In fact, studies at the Treatment Research Institute in Philadelphia have shown that hippocampal volume can be reduced from 10 to 35% with extensive chronic alcohol consumption.

Adolescents who use drugs such as cocaine, ecstasy, amphetamine, methamphetamine, MDMA and cocaine directly alter the structure and development of neurons in the limbic system of the brain. These changes make it very difficult and sometimes impossible for the individual to experience pleasure without using the drug. Over time the changes to the brain may result in tolerance and cause the adolescent to depend on the drug resulting in drug addiction. In some cases the brain changes themselves may become permanent although science has not completely uncovered all of the data behind this question.

Some studies have shown that adolescents that have abstained from chronic marijuana use continued to show evidence of impairment in memory, abstract thinking and ability to focus attention for up to 12 weeks.

Environmental Issues

In addition to the primary effect of the chemical on the adolescent brain there are other factors at play when

one considers the idea of "illegal" involvement. Any child exposed to an environment where illegal activity is involved has been exposed to several factors immediately: lying, hiding information, sneaking around, disrespect of authority, insufficient parental supervision, insufficient or ineffective communication between parent/child, lack of respect for boundaries, potential legal consequences, potential impact on continuation in school involvement, potential for violence.

At best these factors are stressful. At most they can be life altering. Adolescents who begin the cycle of illegal involvement often begin to tell themselves that "everybody does it." This is primarily due to the fact that they start to eliminate friends/family etc., who do not participate in the same behaviors that they participate in order to continue their use of drugs. This provides them with "permission" to continue their behavior. If their parents are the ones who introduce them to the drugs it is even harder to convince an adolescent that drugs are potentially dangerous/damaging

Specific Illicit Drugs

The entry point for illegal drug use is often marijuana. Marijuana is also one of the most difficult drugs to discontinue. Research has shown that the risk of marijuana dependence increases six times for individuals who begin use prior to age 15 than for those who try marijuana after age 18.

A growing area of concern is inhalant abuse in teen years. Solvents are readily available and parents are often unaware that common household chemicals are being abused by their child. Breathing in chemical solvents is called "huffing" and rapidly cause the user to become high. Common chemicals include glues, nail polish remover, spray paints (silver and gold metallic especially), lighter fluid, felt tip markers, hair sprays, some deodorants, gasoline, butane, cleaning fluids and most commonly whipped cream canisters (whippets). Inhalants can disrupt cardiac conduction and cause death very rapidly or lower blood oxygen levels causing serious harm to the brain, liver, kidneys and heart. The National Institute of Drug Abuse sponsored a study in 2006 that uncovered startling statistics that 16.1% of eighth graders, 13.3% of tenth graders and 11.1% of 12th graders had used inhalants at least once.

Another common source of illegal drugs is the medicine cabinet. Teens are looking in their parents, grandparents, aunts/uncles and neighbors medicine cabinets for medications that they can "try" or sell. Most commonly these medications include: oxycodone, hydrocodone, phenobarbitol, lorazepam, oxazepam and a variety of other medications including antidepressants. Many medications can be ordered over the internet.

Heroin is making a huge comeback among the middle and upper-middle class. Adolescents that are Ivy-league bound are finding that heroin is a cheap substitute for the expensive Oxycontin that they may have found themselves addicted to courtesy of "friends."

Availability of Illicit Drugs

According to the 2007 National Survey on Drug Use and Health, the overall use of illicit drugs is declining by teens age 12–17 since 2002 (Fig. 1).

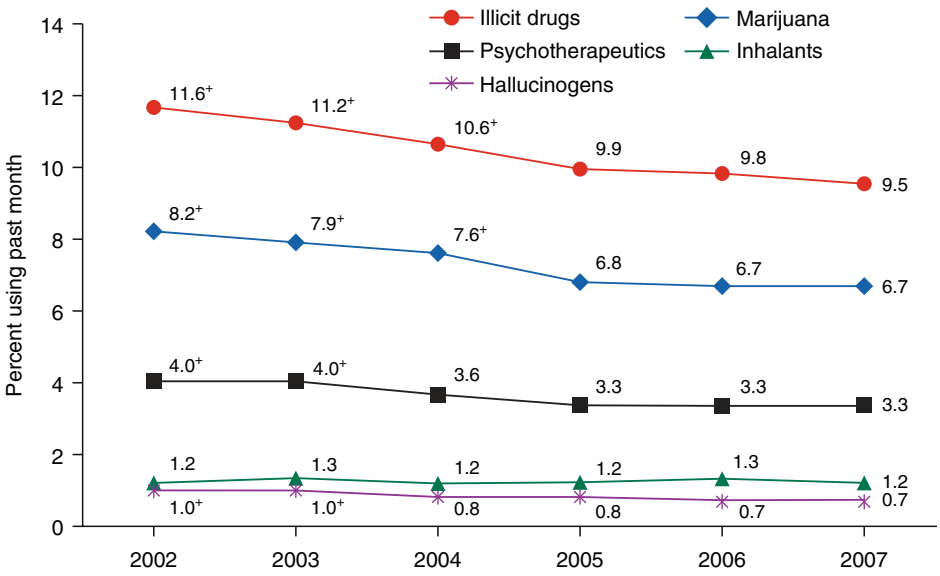
Of the youth who did use illicit drugs in both 2006 and 2007, over half aged 12 and older said they got the drugs they used most recently "from a friend or relative for free." In a follow-up question, the majority of these respondents indicated that their friend or relative had obtained the drugs from one doctor. Among persons aged 12 or older in 2007 who abused pain relievers 56.5% said they got the pain relievers from a friend or relative for free. Another 8.9% bought them from a friend or relative, and 5.2% reported stealing them from a friend or relative.

In 2007, 44.3% of past year methamphetamine users aged 12 or older reported that they obtained the methamphetamine they used most recently from a friend or relative for free. Another 30.4% bought it from a friend or relative. Around one in five users (19.8%) bought it from a drug dealer or other stranger.

Risk Factors

Illicit drug use in childhood or adolescence is usually predicted by several risk factors, or variables. A risk factor is defined as any condition that if present increases the probability that a certain unfavorable outcome will occur. Research supports that in most cases multiple risk factors must be in place for an adolescent to actually develop substance related problems however the greater the number of risk factors, the higher the likelihood of developing substance use or abuse problems. Some common risk factors include:

1. Permissive or favorable parental attitudes
2. Actual parental substance use/abuse (even if the child is not aware of actual use)
3. High family conflict
4. Inconsistent family discipline/boundaries
5. Difficult temperament
6. Low sociability
7. Rejection by peers
8. Academic failure
9. Aggressiveness



Illicit Drug Use in Adolescence. Fig. 1 Past month use of selected illicit drugs among youths aged 12–17:2002–2007 [1].

10. Peers who use drugs
11. Low self esteem
12. Negative mood
13. Impulsivity
14. High arousal needs
15. High need for social approval
16. Low assertiveness
17. Low harm avoidance
18. Disregard for authority (disrespect for authority)
19. Biological predisposition
20. Maladaptive coping responses to stress
21. Sexual victimization in childhood or adolescence
22. Lack of parental support/monitoring

Protective Factors

Protective factors for prevention of illicit substance abuse in children and adolescents include those factors likely to limit, prevent or reduce a negative outcome. These factors serve as a "buffer" between potential risk factors and substance use choices. Some common protective factors include:

1. Parents that talk to their children about drugs and alcohol and the dangers of use openly
2. Involvement in academic and extracurricular activities
3. Involvement in religious activities
4. Academic achievement
5. Strong attachment to school
6. Positive learning environment
7. Low conflict with parents and teachers
8. Peers that do not drink or use drugs
9. Prosocial bonding and behaviors
10. Strong family relationships
11. High self esteem or self-acceptance
12. Self-efficacy
13. Harm avoidance
14. Commitment to societal norms
15. Low family conflict
16. Affectionate parental relationship
17. Parental monitoring
18. Clear, consistent standards and expectations from parents
19. Long term life goals
20. Clear communication within the family
21. Structure in the family setting

Progression of the Disease

Treatment centers are noticing that individuals who are coming in for treatment have started using at a much younger age, therefore their length of time using drugs or alcohol is much longer. Studies have shown that adolescents who start drinking before the age of 15 are 4 times more likely to develop an addictive disease than adolescents who do not, regardless of genetic or environmental factors.

How to Tell if an Adolescent is Using Drugs

1. Change in overall function from previous year or two
2. Obvious presence of drugs or alcohol

3. Change in grades, motivation, skipping classes
4. Significant change in mood (especially irritability and suicidal thoughts)
5. Decreased interest in social activities and/or favorite hobby
6. Significant change in sleep habits
7. Difficulty paying attention and concentrating
8. Change in appetite (much more or less) and/or hygiene
9. Associate with different peer group that does not want to socialize with family activities
10. Legal problems, gang involvement
11. Disregard for authority, rules

One or two of the above (with the exception of #2) does not constitute cause for alarm, however any combination of three or more should point toward a formal assessment for drug abuse evaluation. Any change in mood especially suicidal ideation should include evaluation for significant mood disorder as part of the evaluation.

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Suggested Resources

Faces and Voices of Recover is a National campaign of people in long-term recovery advocating the end of discrimination and assisting understanding of addiction as a national health crisis: www.facesandvoicesofrecovery.org

Join Together is a program of the Boston University School of Public Health and the Nation's leading provider of information, assistance and leadership regarding substance abuse and addiction: www.jointogether.org

The Addiction Technology Transfer Centers are funded by the Substance Abuse and Mental Health Services Administration (SAMHSA) and are dedicated to identifying opportunities and advancing addition treatment: www.naatc.org

The Canadian Centre on Substance Abuse (CCSA) is Canada's national addictions agency with a mission of providing evidence based information to help reduce problems associated with substance abuse: www.ccsa.ca

The Center for Substance Abuse Treatment promotes quality community based substance-abuse treatment services under the substance abuse prevention and treatment block grant: www.csat.samhsa.gov

The National Clearinghouse for Alcohol and Drug Information provides extensive information about prevention, treatment and recovery in both Spanish and English: www.ncadi.samhsa.gov

The National Institute on Drug Abuse brings the power of science to bear on drug abuse and addiction and supports most of the worlds research in this area: www.nida.nih.gov

The Office of National Drug Control Policy – Parents: The anti-drug was created by the National Youth Anti-Drug Media Campaign to equip parents with tools they need to raise drug-free kids: www.theantidrug.com

The Substance Abuse and Mental Health Services Administration is focused on building resilience and facilitating recovery for people at risk for substance addiction: www.samhsa.gov

Illicit Drugs

Illicit or illegal drugs include those that are made to be sold legitimately with a physician's prescription but are marketed illegally without a prescription or some more common street drugs such as cocaine and marijuana.

Illicit Substance Use/Abuse

►Illicit Drug Use in Adolescence

Images

►Imaging Techniques

Imaginary Audience

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Synonyms

Adolescent egocentrism; Egocentrism; Personal fable

Definition

The concept of imaginary audience refers to the tendency of adolescents to see themselves as objects of others' attention and evaluation.

Description

The idea of imaginary audience was originally proposed by Elkind in 1967 [2], as a part of the adolescent's egocentrism, which refers to a lack of differentiation between the ego and the external world. Therefore, the adolescent

cannot distinguish between what other people are actually thinking, and what he or she is preoccupied with.

Elkind proposed that imaginary audience emerges with the start of formal operational thought, in which young adolescents can conceptualize their own thoughts, as well as other people's thoughts. However, the adolescents, now able to conceptualize other people's thoughts, may think that others are being critical or admiring of them, as the adolescents may be of themselves. As a result of worrying about others' perceptions, the adolescents may become self-conscious.

Imaginary audience has been found to be associated with many behaviors and psychological constructs, such as self-consciousness, dating behavior, peer group conformity, susceptibility to peer pressure, parent-child interactions, and problem behaviors [7]. Generally, females have been shown to score higher on imaginary audience than males, and imaginary audience should decrease by the age of 15 or 16, the age where formal operational thought becomes strongly established [1].

There are a few critiques to the concept of imaginary audience. One critique is the lack of an operational definition. Research has supported that the measures that have been developed have been unreliable and are in need of revisions [7, 9, 10]. The most widely used scale, the imaginary audience scale (IAS; [3]), is made of two subscales: the transient self (TS) and the abiding self (AS). The TS scale contains six potentially embarrassing situations, while the AS scale contains six potentially self-revealing situations. Subjects answer from three possible choices, ranging from 1 (low) to 3 (high). However, the IAS has been criticized due to the lack of strong psychometric properties, its measure of self-consciousness rather than imaginary audience, and its reliance on hypothetical situations. In addition, the audience the scale refers to is not defined and its meaning can vary with different age groups, rendering the results unreliable.

The second measure is the new imaginary audience scale (NIAS; [5]), which contains 42 items measuring how much adolescents engage in object relational ideations and personal fantasies. Adolescents rate the items on a four-point Likert scale (ranging from never to often), with higher scores depicting higher sensitivity to imaginary audience. The third measure is the adolescent egocentrism scale (AES; [4]) consisting of descriptive statements that subjects rate in terms of importance; the higher the score, the higher sensitivity to imaginary audience.

Given the lack of operational definition, research focusing on imaginary audience has been inconsistent. For example, several studies have failed to consistently show a relationship between the concept and formal operational thought, as well as an inverse relationship with age. For instance, recent research has shown that imaginary audience has been seen in late adolescents, and even in young adults going into college, which might indicate that imaginary audience might re-emerge when a person is going into a new social context or life event [6, 8].

Lapsley and his colleagues proposed an alternative theoretical framework, the "new look," whereby imaginary audience is viewed in the context of social-cognitive development. The "new look" proposed that the concept is a consequence of separation-individuation. Separation-individuation happens when the adolescent de-idealizes the parent, which creates "mourning reactions" where the adolescent is left empty and isolated. In order to fill in this void, narcissism ensues to protect the ego, until the adolescent is able to regulate from internal sources (regardless of the parent). Therefore the "new look" suggested that imaginary audience is an ideation pattern that actually helps ego development; it restores the adolescent's self-esteem when he or she faces "mourning reactions." This theoretical framework has found more empirical support among researchers.

Future research needs to focus more on operationalizing the concept, and developing measures that are more valid and reliable. Also, to better understand the developmental unfolding of the concept, longitudinal studies need to be conducted. Finally, cross-cultural research should shed more light on the importance of familial, environmental, and physiological aspects in the emergence and subsidence of imaginary audience.

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Imaginative Play

►Pretend Play

Imaginativeness

►Creativity

Imaging Techniques

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Synonyms

Images

Definition

Images are representations based on the composition and look of information [1]. Imaging techniques refer to the methods in which a person stores and recalls images.

Description

Imaging techniques are often used as a tool to facilitate learning. As images are created, we try to recall the tangible characteristics and spatial formation of information. Not all researchers agree on how memory stores images: some believe images are stored as pictures while others believe propositions are stored in long-term memory then transformed to pictures in working memory and recalled as needed. It is however generally accepted that both processes are involved: some recollection of images and some of verbal descriptions. Mentally transforming and rotating images can be used in abstract reasoning and practical decisions [2].

In terms of application, imaging techniques provide opportunity for the development of creative associations. In using imaging techniques there are maturation considerations. Younger children may likely have difficulty recalling images given their abstract properties. Thus this tool should be reserved for students who possess some skill in strategy use to which this technique may be incorporated.

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Imitation

►Social Learning Theory

Imitation Syndrome

►Echopraxia

Imitation Training

►Behavior Modeling

Immediate Memory

►Short-term Memory

Immigrant Children

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Synonyms

First-generation immigrant children; Immigrant youth; Refugee

Definition

Immigrant children were born in their native country, but migrated and reside in a foreign country.

Description

Migration

According to United States Census Bureau data, one of every five children in the U.S. is a member of an immigrant family, and the majority of those accounted for were either of Latino or Asian descent. Specifically, immigrant children from Mexico account for the largest group at 40% [10]. Most of these children reside across the six states of California, Florida, Illinois, New Jersey, New York, and Texas with more than 75% attending school in California, Florida, Illinois, New York, and Texas according to Department of Education records [4]. Legal immigrants accounted for 85% of census totals with reason and mode of migration varying greatly [4].

Immigrant children often migrate with their parents, but in some instances these children migrate with relatives, friends, or strangers to reunite with family members. Both pre-migratory and migratory conditions will affect children's well-being once they arrive to the host country. For instance, some immigrant children come from impoverished and/or war-torn and politically unstable countries and may be referred to as refugees. Sluzki conceptualized the immigration experience as including the preparatory stage and the act of migration [18]. The preparatory stage involves planning and the ability to say good-bye to family and friends. The act of migration is an experience that varies for each child and family and will be influenced by factors such as socio-economic status, the requirements for permission to leave the country of origin, and the possession of documents of legal residency within the new country. In cases where immigrant children must leave and enter countries without authorization, or as refugees, the process may be traumatizing if they have witnessed acts of violence or experienced imminent fear of being harmed. Children who have migrated under these circumstances may show symptoms of psychological disorders, social maladjustment and health issues [8].

Acculturation and Acculturative Stress

Upon arrival to the new country, the changes immigrant children experience have been conceptualized as acculturation [14]. The migration experience is thought to influence the individual's mode of acculturation [8]. Therefore, the directionality of the assimilation process as being either unidirectional or bidirectional has met with controversy [3]. Acculturation requires changes at all levels of an immigrant family including changes in language and culture [20]. Immigrant children often acculturate to the new country more quickly than the adults in their life. Researchers have attributed this to the influence of attending school. When the transition to the new country is difficult and there seems a lack of "goodness of fit", the child may experience acculturative stress. Acculturative stress has been found to be greater after the age of 14, and to negatively impact physical health and mental health outcomes [3, 11, 13].

Factors that may contribute to acculturative stress include the context of the family's arrival to the new country and the environment where they choose to reside. For example, the status of the government's policy toward that specific immigrant group may influence services received or the family's documentation status (e.g., refugee, legal permanent resident, or undocumented). Also, society's sentiment toward that particular group and the location of residence can create an atmosphere ranging from alienation to validation and support [19]. A supportive community of residence may provide cultural brokers to the newly immigrated child and family who can make the transition much easier. Cultural brokers speak the language of the immigrant family and of the host country and are able to explain the customs and laws of the new country to the family.

Impacts of Language

Early language minority immigrant groups within the U.S. experienced hostility and open discrimination [22]. The larger society tried to blend in the overwhelming numbers of immigrants by teaching them the majority language while not accepting the native language [9, 22]. Many experienced alienation from mainstream culture as a function of limited proficiency. Additionally, limited language proficiency was often precluded by low SES, limited literacy and education, and poor social support [8].

Language and Family

Adding to the complexity of issues related to family structure is language. It poses one of the greatest struggles in the immigrant parent's attempt to maintain 'control' over their children's sense of values and heritage. Because language proficiency and competence are means to accessing services and meeting needs, it often creates a dynamic which can either strengthen family bonds or alienate from the new culture [8, 12]. Because immigrant children often learn the language of the new country more quickly than their parents and relatives, they often serve as language brokers. This role involves the responsibility for

translating and interpreting for family members and often other monolingual individuals in their community. Researchers have identified that on average immigrant children begin language brokering at the age of 9 or 10 [6].

Language and School

Literacy skills and educational background are thought to contribute to the rate of language acquisition. Lower levels of literacy make it more difficult to profit from formal educational opportunity [8]. Immigrant children bring experiences, language variation and levels of literacy that greatly influence their readiness for second language acquisition and equip them for formal education and learning. Characteristics and social factors such as motivation, attitude, and native language proficiency can also lead to enhancing or deterring second language acquisition. "Pragmatic language skills" greatly contribute to adapting and accessing social interactions by serving as rules of interpersonal communication [5]. Such organizational cues as eye contact, body language, conversational etiquette serve the common purpose of engaging and sustaining acceptable social interaction [5]. The visual, verbal, and kinesthetic cues referred to as the "thematic redundance approach" are considered multimodal approaches and are as important as language itself in creating a platform for sociolinguistic development through repetitive language use and social and cultural context for interaction [5, 16].

The rate of second language acquisition can be influenced greatly by social, emotional and cultural factors. Immigrant children are likely to respond to the degree of social pressure created and alienation created for both family and community [1]. However, there is strong evidence that 'home language use' can have a positive effect on and improve academics and achievement [2]. Ada et al. also refer to the family and community as "social capital" and suggest that schools should use it to improve rather than alienate and negatively impact the second language learner's achievement [2].

Similarly, language acquisition for first and second language learners has been found to be affected by age of arrival and length of residency for immigrants. Generally, research has found that children become literate at different rates and in different ways [7, 21]. For example, oral language proficiency requires 2–3 years to establish and 5–7 for higher levels of competency [7]. Literature on English language learner immigrants also suggests that the diversity of skill levels is expanding so greatly that needs may be best served through individualized educational planning rather than through existing general language development programs. This approach may require that a more "student-centered pedagogy" be in place to meet such great needs [15, 17].

Relevance to Childhood Development

Although at risk for psychological problems and delays in language acquisition, immigrant children and their families can also be viewed as resilient with much strength related to daily survival in a foreign country. Indeed, language proficiency of immigrant children is a key factor in educational success; however, greater proficiency can increase access to learning and opportunity, increasing the likelihood of better daily functioning while fostering confidence and hope of success in their new society [8].

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Immigrant Youth

►Immigrant Children

Imminent Justice

►Piaget's Theory of Moral Development

Immunodeficiency Syndrome Acquired

►Acquired Immunodeficiency Syndrome

Immunologic Deficiency Syndrome Acquired

►Acquired Immunodeficiency Syndrome

Impaired Language

►Aphasia

Implicit Knowledge

►Analytic Intelligence

Imprinting

►Bonding

Impulse Control

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Synonyms

Cognitive control; Deferred gratification; Delay of gratification; Self-control; Self-regulation

Definition

The ability to resist the impulse, drive, or temptation to perform an action.

Description

Impulse control, or the ability to resist a drive to perform an action, is an ability that develops over time in an

individual. The factors contributing to the development of impulse control are complex and involve multiple domains including biological, developmental, psychological, and cultural factors [1]. The biological/anatomical aspects of the development of impulse control primarily relate to the development of specific brain structures. The cortical regions of the brain, generally the ►prefrontal cortex and more specifically the orbitofrontal cortex (OFC), are thought to be responsible for regulation of impulse control. Lower volume of the orbitofrontal cortex, located in the lower region of the frontal cortex close to the orbital region of the skull, has been associated with greater impulsivity [2]. It is notable that the brain continues to develop through age 25, which accounts for the gradual appearance of impulse control over the course of development as the brain becomes better equipped to resist certain drives.

In addition to anatomical or physiological explanations for the development of impulse control, psychological factors, including child temperament and parenting style, also have been implicated in the development and expression of impulse control. Several dimensions of temperament have been assumed to influence impulse control including irritability, unsoothability, or stimulation seeking [3]. Researchers also found that responsive and cognitively stimulating mothering tended to be associated with improved impulse control and delay of gratification in their 2-year-old children. Findings also revealed that security of mother attachment predicted better impulse control in boys [3].

A child's ability to control his/her impulses may have important later-life consequences. For example, in longitudinal studies looking at delay of gratification, 4-year-old children who were able to delay a reward in a lab setting were described as more academically and socially competent than their peers, and as having higher frustration tolerance and a better ability to resist temptation when they were described 10 years later. These children also were generally more effective communicators, had better reasoning skills, and seemed to be more skilled at tasks involving concentration and planning. Better outcomes also were seen in psychological domains, in that these children developed more effective coping skills, were better able to manage stress and were described as more self-assured [4].

Relevance to Childhood Development

Impulse control is present in varying degrees throughout a child's development. During the first year of life, an infant acts on impulses. Infants may pull hair, reach for a toy that is being used by another child, or push a bottle away when they are finished eating. These acts are performed with no regard for the consequences and are simply in response to an impulse [5].

In the second year of life, a child may have some regard for consequences or limits set by an adult, such as responding to a parent's request to stop doing something. The child will also learn about the things that he or she has been told not to touch or do and acknowledge the acquisition of this knowledge although he or she may still engage in the discouraged behavior. For example, a child may look at an object (such as a lightbulb) and say "no touch" while reaching for the object. Children also may look at their parent while reaching for the object and saying "no touch", awaiting the parent's reaction to determine whether it is safe to reach for the object. The beginnings of impulse control are starting to be expressed in this developmental stage [5].

During the third year of life, a child may begin to voluntarily control their behavioral impulses and expression of emotion. For example, a child will begin to share, even though their impulse is to keep the object for themselves. The child also may voluntarily use gentle touch with an animal, instead of having to be reminded [5].

►Cognitive control begins to develop at 18 months of age and continues to develop throughout childhood, as the child's cognitive abilities become more sophisticated, not reaching full maturity until after age 12. During this time, it is possible to see significant individual differences in a child's ability to control his/her impulses [6].

Adolescence marks a critical developmental stage for the development and application of impulse control. During this time period, there tends to be an increase in risky and impulsive behaviors. Two important brain structures, the accumbens and the prefrontal cortex, develop during adolescence and are implicated in the regulation of impulse control. The accumbens, which develops first, is responsible for reward anticipation. The prefrontal cortex is associated with increased cognitive efficiency and control and develops at a slower rate. Therefore, adolescents experience increased anticipation for rewards while not having the brain structures associated with cognitive control. This leads to the development of impulsive behavior, or, a strong drive for seeking out rewards with little regard for the consequences [7].

Impulse Control Disorders

Several psychological disorders characterized primarily by a loss of control are included in the Diagnostic and Statistic Manual-IV-TR [8]. The DSM-IV-TR details the following impulse control disorders: Intermittent Explosive Disorder; Kleptomania; Trichotillomania; Pyromania;

Pathological Gambling; and Impulse Control Disorder, Not Otherwise Specified. Impulse control disorders are experienced by approximately 5–15% of the US population. From a developmental perspective, children and adolescents are thought to be affected by intermittent explosive disorder, pyromania, and trichotillomania, while adults would be more likely to be diagnosed with kleptomania or pathological gambling.

The defining characteristics of intermittent explosive disorder (IED) include recurrent episodes of a failure to resist aggressive impulses that frequently result in serious assault against persons or in the destruction of property. Notably, these violent and aggressive outbursts occur in significant disproportion to any precipitating psychosocial stressors or events that trigger them. The aggressive outbursts tend to have a sudden onset, and are short-lived, typically lasting less than 30 minutes. Individuals diagnosed with IED often report feelings of relief and eventual remorse following their impulsive and aggressive behavior. Most of the aggressive outbursts are associated with a minor provocation from a close partner, friend, or associate; however, there are instances with no identifiable provocation [9].

IED typically first appears in adolescence or the young adult years with a mean age of onset at 15 years; however, there are some cases that begin as early as childhood. The average duration of diagnosis is approximately 20 years [10]. There is a significant gender disparity in diagnosis, with males being three to four times more likely than females to be diagnosed with IED. Genetics play a significant role in IED, as individuals with this diagnosis often have multigenerational histories of family violence.

Trichotillomania is characterized by recurrent, persistent, and excessive pulling out of one's own hair resulting in noticeable hair loss. Individuals may engage in trichotillomania during both relaxed and stressful times, but often report feeling a sense of tension before the hair pulling, and a feeling of release, pleasure, or gratification following the act. This disorder must result in clinical distress or impairment in life functioning. The primary target for hair pulling involves hair on the scalp, although hair from other parts of the body (e.g., eyelashes, eyebrows, beard, torso) also may be pulled. The recurrent nature of the hair pulling often results in bald patches to the affected area. Hair pulling may occur for short repeated episodes or for longer periods that may last several hours.

In childhood, the observance of trichotillomania among males and females is approximately equal; in adults, it is much more common in females than in males. Determining an accurate prevalence rate is challenging because of frequent denial of the disorder and the failure of many individuals with the disorder to seek professional intervention. In the most well-cited study of college students, approximately 1–2% had past or current symptoms of trichotillomania [11]. The primary ages of onset are between 5 and 8 years of age and 13 years, with an average duration of 21 years. Astute clinical evaluation is necessary for younger children because trichotillomania is often mistaken for a short-term habit of hair pulling. In fact, the behavior must last several months to be considered trichotillomania. Although the etiology of trichotillomania continues to be unknown, several lines of research suggest a neurological link to high rates of glucose metabolization, a possible serotonin deficiency, and it also is thought to have a genetic component.

Pyromania is a disorder characterized by deliberate fire setting on more than one occasion. Pyromaniacs set fires for pleasure, and often experience a sense of relief or gratification from the experience. Individuals with this disorder also have an intense fascination with fire and burning objects, as well as with watching firefighters and their efforts to put out fires. Pyromaniacs are not motivated to set fires for financial gain, to hide criminal activity, or to express anger or revenge; rather, their impulsive behavior is primarily driven by their fascination with watching things burn. The majority of pyromaniacs have a history of fire setting that began in childhood.

Pyromania is considered to be rare at any age and even rarer in childhood. Indeed, the incidence of pyromania is less than 1% in most studies. Further, in those instances when children and adolescents are arrested for pyromania, only a very small percentage qualifies as true pyromaniacs. The gender distribution is skewed heavily male, with over 90% of those diagnosed with pyromania being male. Pyromaniacs frequently have comorbid behavior, attention, and learning problems. In some cases, there is a positive history of sexual abuse and/or cruelty to animals. Common biological characteristics associated with pyromaniacs include abnormalities in the levels of the neurotransmitters norepinephrine and serotonin, as well as low blood sugar levels.

Although not a defining symptomatic feature, poor impulse control may be present in children and adolescents diagnosed with externalizing disorders such as Attention Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), or Conduct Disorder (CD), as well as obsessive–compulsive spectrum disorders.

Impulse control disorders may be treated using a number of methods, including psychological and

pharmacological interventions. Psychological interventions include behavioral techniques taught to the child as well as the parents that address the impulsive behaviors and identify any associated triggers associated, delineate the negative consequences of acting on those impulses, and learn ways to resist the impulse [12]. Because some research suggests that low serotonergic levels are implicated in the onset of impulse control disorder, pharmacologic medications such as selective serotonin reuptake inhibitors (SSRIs) have been shown to reduce impulsive behaviors associated with many of the previously described impulse control disorders. There is some evidence that other pharmacologic agents such as lithium, buspirone, and anticonvulsants also are effective in managing impulsivity. In children with ADHD, psychostimulant agents may be utilized to reduce impulsivity [13]. Pharmacological and psychological interventions may be used separately or together in the treatment of impulse control disorders.

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Impulsive Aggression

►Hostile Aggression

Impulsivity

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Synonyms

Disinhibition; Temporal discounting

Definition

Impulsivity refers to a behavior pattern in which individuals demonstrate deficient control over their behavior. Multiple biological and environmental sources are believed to contribute to this temperament dimension. Extreme impulsivity that impairs one's level of functioning has been characterized as a hallmark of a number of childhood behavioral disorders. A variety of assessment techniques have been employed to measure impulsivity, including observer-rating scales, self-report, and neuropsychological tasks.

Description

Impulsivity is a dimension frequently included in theories of child temperament, behavior, and personality. While there is no widely adopted definition of impulsivity, there are a number of behaviors and behavioral tendencies universally identified as characterizing the construct, including executing action without thinking, having difficulty withholding or inhibiting action, and having the tendency to seek out immediate gratification at the expense of longer-term goals [10]. In the hierarchy of temperament factors, impulsivity is suggested by most theorists to form part of the higher order concept extraversion, together with sociability and sensation seeking [6].

Many believe the construct of impulsivity includes both cognitive and behavioral components [2, 5].

There are a number of factors that may cause one to have difficulties with impulsivity. Cognitive and behavioral factors hypothesized to be involved include attentional functioning, task comprehension, processes involved in initiating and executing responses, processes involved in delaying, inhibiting, or interrupting responses, and mechanisms of processing feedback from the environment, including the processing of reward and punishment. Environmental events may also trigger problems with impulsivity, including brain injury or other central nervous system insults, exposure to teratogenic agents, early traumatic experiences including social deprivation, child abuse and neglect, or genetic vulnerabilities that give rise to deficient executive control over behavior [3].

Although many researchers and practitioners focus on the extreme of high impulsivity, most theorists consider impulsivity to be a continuum, and therefore children fall at all levels of it. Extremely low levels of impulsivity may manifest themselves in extreme shyness, anxiety, or submissive behavior patterns. Within the normal range of functioning, impulsivity plays an important role in child development. Impulsive behavior patterns allow children to take risks, try new things, and learn and explore the world around them. Most of these outcomes are positive but at times, impulsive behavior patterns among normally developing children can lead to negative outcomes. For example, impulsive children may be at greater risk for unintentional injury [11]. Children with high levels of impulsive behavior may also experience difficulty learning or increased disciplinary action in classroom settings.

Developmental psychopathology models suggest that impulsivity during the preschool years may represent the first stage in a trajectory that can progress to early onset delinquency and other antisocial behavior patterns [8]. According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; [1]), impulsivity is a feature of some personality disorders (i.e., borderline personality disorder) and certain behavior disorders including conduct disorder, disruptive behavior disorder, and the Combined and Hyperactive/Impulsive subtypes of attention-deficit/hyperactivity disorder (ADHD). In ADHD, impulsivity is manifested by the tendency to blurt out answers before questions are finished, to be impatient (i.e., difficulty in waiting one's turn), and to interrupt others – all of which have implications for successful engagement in applied settings such as developing healthy peer relationships and succeeding in school and home environments [7, 13]. It has been well documented that stimulant medications along with behavioral interventions focusing on parent training and child behavior management may reduce impulsive behaviors in children with ADHD (e.g., [4, 9, 12]).

Assessment of impulsivity in children is performed through multiple methods, including observer-rating scales (e.g., Child Behavior Questionnaire, Child Behavior Checklist, Conners Rating Scales), self-report measures (e.g., Eysenck I.6 Impulsiveness scale), and neuropsychological tests and cognitive tasks (e.g., Continuous Performance Test, Stroop word-color test, Trail Making Test). Given the multifaceted nature of impulsivity, it is advisable for clinicians and researchers to use multiple assessment methods completed by multiple reporters.

I

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In Danger: in Jeopardy, Threatened, Susceptible

►At Risk

In Residence

►Group Homes

Inadequate Growth

►Failure to Thrive Syndrome

Inattention

►Distractibility

Inattentiveness

►Distractibility

Incentives

►Motivating Operations
►Motivation

Incest

►Sexual Abuse

Inclination

►Mood

Inclusion

►Mainstreaming

Inclusive Education

►Full Inclusion
►Mainstreaming

Inconsolable

►Grieving

Independent Decision Making

►Autonomy

Independent Variables

►Variables, in Experimental Developmental Research

Indifferent Parenting Style

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Synonyms

Disengaged parenting style; Neglectful parenting style; Nonconformist parenting; Rejecting parenting style; Uninvolved parenting style

Definition

One of two subtypes of the general style of permissive parenting. (Definition 1: Permissive parenting is a style of parenting identified by the research of Diana Baumrind that is characterized by few demands, excessive permissiveness and lack of structure, rules and limitations.) Parents whose behavior fits in this category are uninvolved with their children and fail to provide adequate support and structure.

Description

Theoretical definitions of neglect vary, in part, depending on the purpose for which the definition is used. In general, neglect is conceptualized by most experts as parental behaviors that result in negative consequences to the child [5]. Unlike other forms of child abuse, neglect is an act of omission in care rather than commissions that endanger or harm children.

Neglectful parents demonstrate a failure to provide adequate medical care, nutrition, education, and age-appropriate supervision for their children, as well as safety, emotional contact, and sufficient environmental stimulation and structure. Definitions of neglect also involve exposure of children to spousal abuse, as well as permitted substance abuse and other maladaptive conduct by a child [1]. These elements can occur in combination with each other and with other forms of abuse.

The most pervasive feature characterizing indifferent parents appears to be a variety of parenting skills deficits. Indifferent parents are described as neither demanding nor responsive to the child. They engage in fewer positive interactions with children, less overall interaction, and more insensitive interactions. The indifferent parent is disengaged and emotionally distant from the child, is not dedicated to parenting roles and is disinterested in helping foster optimal development of the child. This type of parent tends to view parenting as a burden and may consequently limit both the quality and quantity of time dedicated to the child. Additionally, indifferent parents fail to implement guidelines and set regulations to control the child.

Even though research is not conclusive, biological, personality-emotional, socio-cultural, and experiential factors have been proposed in the etiology of the behavior termed indifferent parenting. Experts agree that there is no single cause of child neglect; rather, a variety of factors are thought to be implicated in the production of behaviors that are typical of neglect. Several studies have indicated that indifferent parents are deficient in parenting skills, have more inappropriate expectations of their children, and lack both information concerning child development, and knowledge of the complexities of the parent–child bond [5, 11, 12]. Further parental characteristics that have been found to be associated with an indifferent parenting style include impulsivity, confusion, apathy, emotional detachment, and mental illness. In terms of personal demographics, parents who neglect their children are more likely than controls to be female, single, older, younger, and undereducated [12]. The absence of the father that has been observed in a significant number of neglectful families means lower income and less tangible resources to provide for children's needs [5]. Additional factors involved in the etiology of child neglect include poverty, unemployment, social isolation, loneliness, low socio-economic status, and substance abuse [3, 5, 6, 12].

Relevance to Childhood Development

The idea that early, maladaptive parent–child relations play a fundamental role in psychopathology has long been central to developmental theorizing. A substantial body of research suggests a strong relation between family dynamics and psychological adjustment. Parenting styles have been found to have a significant impact on a child's physical well-being, psychosocial adjustment, academic achievement, and involvement in drugs or alcohol [1–3, 5, 12]. Indifferent parenting has been shown consistently to have detrimental effects on the adolescent's mental health and development, leading to a variety of emotional and behavior problems. Children from neglectful environments experience developmental, neurological, emotional, and behavioral disturbances that prevent healthy growth and development [12].

In terms of physical health, neglected children have been found to suffer more problems, including malnutrition, failure to thrive, special needs, impaired visual and motor skills, poor hygiene, and substance abuse [12]. During infancy and childhood, sustained neglect can result in maladaptive socio-emotional patterns: neglected children demonstrate greater dependency, tend to have poor social skills and insecure attachment relationships, and show little concern for their peers' distress. Neglected children also tend to express more negative emotions and to exhibit more avoidance, noncompliance, and conduct disorder. They have more difficulty monitoring and regulating their emotions [1, 6, 12]. Numerous studies indicate that indifferent or neglectful parenting tends to foster higher rates of impulsivity and involvement in delinquent behavior [4, 7–9, 11, 13]. Insufficient parental involvement, guidance and supervision have been shown to produce a disrupted and atypical attachment pattern between the child and the parent [10]. In turn, these early

disturbances in attachment relations appear to lay the foundation for disturbances in developmental processes that can lead to various forms of psychopathology.

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Indifferent Parents

►Uninvolved Parents

Indigent Family

►Homeless Families

Indirect Aggression

►Relational Aggression

Individual Education Plans

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Synonyms

IEP; Individual Education Programs

The Individual Education Plan/Program also called, IEP is a solid, legally binding commitment of resources spelled out in measureable goals and objectives that the district must provide to meet the child's needs reflective of the special education eligible disability [1]. As such, the IEP is conceptualized as both a product and a process [4], that is developed, reviewed, and revised that must include the child's present levels of academic achievement and functional performance, measurable annual goals, including academic and functional goals, specific special education and related services, extent of the student's participation in regular education programs, initial dates and duration of services; and criteria, procedures, and schedules for evaluating attainment of the short-term objectives ([5]; IDEA.Ed.gov). In simpler terms, an IEP includes a statement of the special education and related services to be provided to the student and a statement of the program modification to be implemented, in order that the student can progress appropriately toward attainment of the annual goals, be involved and matriculate through the general curriculum with opportunities to participate with other students [7].

Description

Historical Overview

During 1977, it became a matter of federal law that every child in the United States that has a disability and needs special education was entitled to a "free and appropriate education" (FAPE) under the Individual with Disabilities Education Act (IDEA) [1]. Within the IDEA framework, the IEP is likened to the centerpiece or heart and soul of the Individuals with Disabilities Education Act (IDEA) that is described as the legally prescribed mechanism for designing and monitoring students receiving special education services [5]. According to [4], the IEP should

be conceptualized as both a product and a process that includes written elements that govern the implementation of a uniquely appropriate education specific to the student's needs, as mandated by the All Handicapped Children Act of 1975 (PL 94–142) [5]. According to the U.S. Department of Education, Office of Special Education Programs, an individualized education program/plan or IEP is a written statement for each child with a disability that is developed, reviewed, and revised that must include the child's present levels of academic achievement and functional performance, measurable annual goals, including academic and functional goals, specific special education and related services, extent of the student's participation in regular education programs, initial dates and duration of services; and criteria, procedures, and schedules for evaluating attainment of the short-term objectives ([5]; IDEA.Ed.gov). Furthermore, any child that is determined eligible for special education services according to IDEA, is entitled to an IEP which is individualized to meet the child's needs that allow the child to benefit educationally, as specified by the IEP team [1]. Conclusively, there are three main components of the IEP: (1) the IEP Team, (2) The IEP Meeting and, (3) the IEP document.

IEP Meeting

The IEP meeting is conducted by the IEP Team, who has sole authority according to IDEA, of deciding what services a child will receive [1]. The IEP team should legally include people who are important to the student's education including the student's regular and special education teachers, an administrator with authority to commit educational agency's resources to implement the IEP; and one or both parents [5]. The key responsibility of the IEP team, also called the Core Team or ARD (Admission, Review and Dismissal) committee is to plan an individualized education program consisting of special education and regular education services that includes related services such as modifications and accommodations implemented in the regular education classroom. A primary component of the IEP meeting is the mandated parent participation, which should foster a tone of mutual cooperation and problem solving that parents may fully and effectively engage in the IEP meeting. Prior to the IEP meeting, parents must receive a statement of the parents' procedural protections upon each notification of an IEP meeting.

In order for the IEP team to discuss and deliberate the student's needs, the IEP meeting setting should be physically comfortable and free of distractions. Although a part of the IEP team, there is no requirement that they be present when the official version of the IEP is finalized [7]. The IEP problem-solving process involves the development, implementation, and evaluation of the IEP, in order to determine the specialized needs of students with disabilities [5]. The first step of the IEP process is identification and clarification of the presenting problem [2]. In such, all of the child's unique and multifaceted needs must be addressed across all domains affecting educational progress. According to Grzywacz et al. [7]), the IEP development is defined as a three-fold inquiry made by the IEP team: (1) What are the child's unique educational characteristics/needs,(2) What will the district do/provide in response to each of these characteristics/needs, (3) What services are effective, what goals and objectives will the child reach? After considering the above, it is important to note that the availability of services should not be considered in composition of the IEP document. Therefore, if a service is needed, it must be written on the IEP and if the district does not have it available, the service must be provided by an alternate agency, as mandated in early rulings requiring availability of services be disregarded in writing of the IEP [7].

IEP: The Document

The IEP is a written working document designed to uniquely meet the education needs of a student in special education, in efforts to guide the educational programming for students in special education. In order for a child to receive special education and related services specified, an IEP must be in effect and implemented as soon as possible following the IEP meeting Specifically, in [3], the US Supreme Court included in the criteria for appropriate education of students with disabilities the existence of an IEP that is "reasonably calculated to enable the child to receive educational benefits" [6]. Further, the IEP should build on information obtained in the comprehensive evaluation, consisting of the behaviors most central to the student's education, and not containing more than ten annual goals [9]. The annual goals of an IEP represent the amount of progress a student is expected to make in a single year. In composition of the goals, the IEP must include the amount, the location, the beginning date, and the duration of related services to be provided, with the best practices that such components be composed in measurable terms. Specifically, each goal must have two to three measurable benchmarks or objectives, that indicate "how far toward the goal, by when" the child will progress. The written IEP should also include positive behavioral interventions and discipline strategies to address behavioral concerns, while focusing on accommodations and adjustments an individual child needs for appropriate access and participation in the general curriculum [1].

As mandated by IDEA the IEP must explain the extent to which a student will not participate with nondisabled students in the general education curriculum and a statement of any individual modifications needed for the student to participate in state or local student achievement testing [7]. The IEP meeting outcome, is that that the IEP team reach an agreement regarding the provisions of the IEP, with the district being the party responsible for ensuring the decided upon services are provided. In the instance that the team fails to reach a consensus, the district is required to give the parents prior written notice of its proposal and/or refusal s relative to the child's programming and placement [1].

Relevance to Childhood Development

The IEP is relevant to childhood development due to Public Law 99–457, "Child Find" which focuses on children from birth to age 5, requiring a mandate to identify children with disabilities and those at-risk for school failure. The essence of the IEP serving as a compilation of resources to address the educational needs of children who may be experiencing atypical development further informs its relevance to childhood development. Specifically, weaknesses in a child's attainment of age-specific developmental milestones often identified prior to kindergarten, may impact learning, thus leading to the IEP process. It is further important to note that early identification of such weaknesses is invaluable is its role in helping to develop an individualized education program.

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Individual Education Programs

▶Individual Education Plans

Individualized Education

▶Special Education

Individuals with Disabilities Education Act (IDEA)

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Synonyms

2004 Education for All Handicapped Children Act; 2008 Education for All Handicapped Children Act; Special education

Definition

The Individuals with Disabilities Education Act (IDEA) is the federal law that ensures that children with disabilities receive a free, appropriate public education in the least restrictive environment (LRE).

Description

For over 30 years now, a law that Congress enacted in 1975 has governed the education of children with disabilities. That law is called the Individuals with Disabilities Education Act and is known as IDEA. In the years that followed,

IDEA was amended a number of times with the most recent revisions occurring in 2004 through P.L. 108-446, the Individuals with Disabilities Education Improvement Act [2]. Over the course of the years since it first enacted IDEA in 1975, Congress has expanded the group of students who have a right to special education. At first, the group consisted of students ages 6–18, but now it includes infant and toddlers from birth though age two, young children ages 3 through 5, and older students ages 6 through 21.

This law started into motion a movement that even today continues to impact the lives of children with disabilities and their families. This legislation was designed to ensure that all children with disabilities receive an appropriate education through special education and related services. This law established six major components that have a direct effect on children with disabilities: (1) a free appropriate public education, (2) nondiscriminatory evaluation, (3) procedural due process, (4) individualized education program, (5) LRE, and (6) parental participation.

All children, regardless of the severity of their disability, must be provided an education appropriate to their unique needs at no cost to the parent(s)/guardian(s). Educators sometimes use the term "zero reject" to describe this mandate of enrolling all students. With this law, children with disabilities have a right to attend a local school as well as receive services that support their education in general education classes or most natural settings. To accomplish this, each state has in place what is called a child find system, a set of procedures for alerting the public that services are available for children with disabilities and for distributing print materials, conducting screening, and completing other activities to ensure that children are identified. The child find procedures include children with disabilities attending private and religious schools and highly mobile children with disabilities (such as migrant and homeless children).

Nondiscriminatory evaluation attempts to eliminate discrimination in the classification and placement of children suspected to have disabilities. Prior to placement, a child must be evaluated by a multidisciplinary team in all areas of suspected disability by tests that are not to be discriminatory on a racial or cultural basis. The law requires that children be evaluated by trained professionals who must administer validated tests and administer tests in the child's first language or other mode of communication (Braille, sign language). The evaluation must not consist of only a single general intelligence test but must be tailored to assess specific areas (language, cognitive, motor, etc.) of education. Professionals cannot use a single procedure as the sole criterion for determining a special educational program for a child.

Procedural due process affords parent(s)/guardian(s) several safeguards as it pertains to their child's education. IDEA ensures that any decisions made concerning children with disabilities are done so with parent input and in compliance with clear procedures. Parents must give written consent for their children to be assessed to determine if they have a disability. Similarly, parents must be invited to attend any meetings regarding their child, and they must give written permission for the child to receive special education. Further, written notice must be made prior to any change in placement. All records are confidential, and if parents do not agree with any evaluation or special education placement, they have the legal right to go to court. If disagreements occur between parents and school professionals related to placement or any other part of special education, mediation is an informal strategy that must be offered to parents to try to resolve the disagreement. If mediation is not successful, a due process hearing occurs.

IDEA requires that an individual education program (IEP) or an individualized family service plan (IFSP) be developed for each child with special educational needs. The plan for students ages 3 through 21 is called an IEP. The IEP is based on the student's evaluation and is outcome-oriented. The IEP must include the child's present level of educational performance, measurable annual goals, special education and supplementary aids and services, participation in general education and state- and district-wide assessment programs, dates and frequency of services, placement, transition services, and a statement about how the child's progress in meeting annual goals will be measured and how the child's parents will be informed. The IEP must be reviewed and updated annually. Of course, it may be revised more often if necessary.

IFSPs are created for infants and toddlers and their families when eligibility for early intervention is established [1]. This requirement underscores the significant role of the families. This legal document is the early intervention analog to an IEP, but is more holistically conceived than the latter. Each IFSP must include present levels of child's developmental status, the family's resources, priorities, and concerns related to enhancing the child's development, expected major outcomes, specific services provided, projected dates of initiation and duration of services, name of the service coordinator, and steps taken to support the transition to the preschool program. Under Part C, family members other than the child with a disability may be receiving services. Reflecting the rate

of change in infants and toddlers, IFSPs are reviewed at least every 6 months or more often if needed.

The principle of the least LRE is based on the requirement that schools must offer a variety of settings that provide the most appropriate placement options for students with disabilities and from which these students can benefit. The LRE is the setting most like that of nondisabled children that also meets each child's educational needs. It is now presumed that the general education setting is the LRE for the majority of children with disabilities, and educators must justify any instance in which a child with a disability is not educated there. Young children with disabilities receive special education and related services in a variety of school and community sites. The team developing the child's IEP or the IFSP determines the appropriate placement based upon the child's needs. However, a full continuum of educational services must be available for children with disabilities. These include general education classes, resource rooms, special classes, special schools, and homebound or hospital placements.

Parents and students bring added knowledge about the student's problem and expertise in helping to create solutions. This legislation requires that parents participate fully in the decision-making process that affects their child's education. IDEA explicitly calls for the active involvement of parents in all aspects of educational programming for their children with disabilities. When the provisions of IDEA are fully implemented, both letter of the law and the spirit of the law are protected. When this is the case, there is a supportive and mutually respectful relationship between families and professionals from the start.

Relevance to Childhood Development

The field of special education service delivery is entering a new era of accountability. The recent alignment of the IDEA Amendments of 2004 (P.L. 108-446) with the No Child Left Behind Act of 2001 (NCLB; P.L. 107-110) places more emphasis on the achievement outcomes of special education students than ever before. Language in IDEA 2004 recognizes the previous lack of expectations and low achievement levels of students with disabilities. Both pieces of legislation include the expectation that students with special needs will achieve the same academic standards as children without disabilities. IDEA requires that students with disabilities have access to the general education curriculum (the same curriculum that students without disabilities have) to the maximum extent possible. Further, IDEA strengthens the role of parents and ensures that they have meaningful opportunities to participate in the education of their child.

IDEA defines special education as specially designed instruction, at no cost to the child's parent(s)/guardian(s), to meet the unique needs of a student with a disability. Special education is individualized to the student to meet a student's needs. To be eligible for special education services, (a) a student must have a disability and (b) that disability must adversely affect the student's education performance. IDEA describes 14 categories of disability. Some states follow these federal categories, whereas others use slightly different terms and definitions for describing disabilities.

Since the needs of and services provided to infants and toddlers are so different from the needs and services for older students, IDEA is divided into two parts. Part B of IDEA contains the requirements for providing special education and related services to children with disabilities from 3 through 21 years of age whereas Part C authorizes grants to states to develop and maintain early intervention programs for infants and toddlers with disabilities, birth to age 3 years and their families. Part C, the infants and toddlers program, has parallels with the provisions and requirements of Part B; however, these provisions and requirements differ in important respects from those of Part B. For example, while Part B eligibility is based on categories of disabilities, eligibility for Part C programs are often based on a diagnosis of "development delay" that requires early intervention services. Instead of an IEP, Part C programs have IFSP in recognition that services must be provided to the family as well as to the infant or toddler. Since very young children are served in a variety of locations (including the home), Part C services are to be provided in "natural environments" which are the types of settings in which infants and toddlers without disabilities would participate.

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Individuation

►Autonomy

Inductive Parenting

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Synonyms

Authoritative parenting; Child-centered parenting; Reasoning-oriented parenting

Definitions

A supportive style of parenting that involves the use of reason during the establishment and enforcement of child behavior limits.

Description

Popularly considered the most balanced parenting style, inductive parenting involves the utilization of clear limits, rules and consequences with a certain level of flexibility in order to maintain responsiveness to a child's fluctuating emotional status. Inductive parenting encourages *autonomy* and open communication in the child, while maintaining a high level of parental demand regarding conduct and behavior. Child security is provided through adherence to consistent routines and schedules while the value of a child's input encourages independence. The decision-making process is a collaborative effort between parents and children that involves negotiation and understanding, although the final decision remains with the parent.

According to studies, the effects of inductive parenting style extend through childhood indo adolescence. Due to the encouragement of open communication and independence, children raised in this parenting style develop less problem behaviors, higher self-confidence, higher control over aggression, exhibit higher degrees of academic success, function well in social environments and display a high measure of social responsibility.

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Inductive Reasoning

Inductive reasoning is the type of reasoning involving moving from a set of specific facts to a general conclusion. Inductive reasoning involves drawing conclusions from objects or entities that have been examined to establish a conclusion about an object or entity that has not been examined. Inductive reasoning is also used to build theories in which specific facts are used to create the theory, explain the relationships between facts and thereby allow prediction of future knowledge. Inductive reasoning is the primary philosophical method used to examine phenomena such as morality, faith and existence.

Indulgent Parenting Style

►Permissive Parenting Style

Infancy

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Synonyms

Baby; Babyhood; Early childhood; Formative year; Newborn; Tot

Definition

Infancy is generally considered to be the year of life.

Description

Physical Development

Motor development during infancy advances in an ordered manner from head down (cephalocaudal) and trunk of the body outwards (proximodistal). In other words, the infant will first gain control of their head and lift it. As the child ages, they are able to control the neck, trunk, legs and feet. Likewise, they acquire control of their shoulders, then arms, hands, and finally fingers ([2], p. 236).

Reflexive actions are the primary types of motor skills the newborn exhibits. Most of the reflexes are considered

to be related to survival. For example, sucking, rooting for the breast or bottle, grasping, and eye blink ([2], p. 236).

From ages 1 to 4 months the infant's average length is 20–27 inches and the average weight is about 8–16 lb. The infant can grasp objects with their entire hand, raise their upper body and head when the arms are in the prone position, and can turn their head from side-to-side when lying down ([2], p. 236).

From ages 4–8 months the infant can use the pincer grasp, reaches with one arm rather than both, can transfer objects from one hand to the other, shakes and pounds objects, and puts most things into their mouth. In addition, the child can hold their own bottle, sit alone, pull into a crawling position, and at the end of this period begins to crawl ([2], p. 239). Children of this age gain approximately 1 lb each month and 1/2 in. in length. Teeth being to appear thus increasing drooling, chewing, and biting ([2], p. 236).

From 8 to 12 months children gain about 1 lb and 1/2 in. each month (p. 237). At this age children reach with one hand when offered an object, pokes with one finger to explore objects, puts objects into containers, and releases objects by dropping or throwing them. Also, children begin to pull up to a standing position, cruising by holding onto furniture, crawls up and down stairs, and walks while holding an adult's hand. Some children may walk alone at this age [2, p. 239].

Cognitive and Language Development

During the first month of life, the infant begins to study their own hand, may put body movements in rhythm to adult speech patterns, and prefers the primary caregiver's voice to that of a stranger. Additionally, the infant communicates through crying and may prefer certain voices, sounds or music [2, p. 254].

During months 1 through 4 the infant begins to recognize familiar objects, does not search for objects that fall or otherwise disappear, and imitates gestures such as bye-bye. The child also reacts to familiar voices, babbles or coos when spoken to, and laughs out loud (p. 254).

From 4 months through 8 months the infant begins to focus on smaller objects and reaches for them. The child also imitates actions such pat-a-cake and peek-a-boo. If an object is hidden the child will search for it and drops one toy when handed another. The infant will bang objects together, play with small toys, and coordinates eyes, hand and mouth to explore an object. Responding to name and simple commands such as "Wave bye-bye," occurs during these months. The infant can now respond to the voice of others, produce vowel sounds and some consonants, and babble by repeating syllables (p. 254).

From 8 to 12 months the child points to objects, follows simple directions, drops toys intentionally, as well as puts blocks into a cup when asked. In addition, the infant can put a spoon in their mouth and turn pages of a book. Further, the child babbles to initiate socialization, shakes head "no," enjoys simple songs, and hand a toy to an adult when asked (p. 255).

Social/Emotional Development

During the infant stage bonding and attachment are critical. Bonding refers to the process where the adults in the infant's life become emotionally attached to the child. While attachment is the emotional bond the infant forms with the primary care givers in her life (Morrison, p. 253). These two concepts are critical for the infant to develop secure emotional relationships for the rest of their lives.

Emotional self-regulation is another aspect of the infant's social/emotional development. This refers to the ways humans are able to adjust to their emotional states. During the first few months of life, infants do not have much ability to regulate their emotions. They become overwhelmed by stimuli and may turn away or begin to suck or cry when their emotions become too intense. By 2–4 months of age the infant gains in the ability to tolerate more stimulation. Caregivers can build upon this growth by adjusting the pace of their interactions with the baby to help the child not become overwhelmed with stimulation. At the end of the first year of life the baby can begin to self-regulate by crawling or walking away from unpleasant stimuli ([1], p. 403).

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Infant Death

►Infant Mortality

Infant Mortality

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Synonyms

Infant death

Definition

The term infant mortality is used to describe the number of deaths of new-born children aged 1 year and younger.

Description

Infant mortality refers to deaths of infants under the age of 1 year and measured by the infant mortality rate, expressed in number of deaths of children under the age of 1 year for each 1,000 live births. The infant mortality is used to compare the health and well-being of populations within one country and between countries of different socio-economic development. Infant mortality numbers also provide important information about level of medical services, child-rearing behavior, and sanitation and help estimate communities at risk.

In relation to timing of death the infant mortality is divided into four categories [3].

1. Perinatal mortality only includes deaths between the fetal viability (22 weeks gestation) and the end of the 7th day after delivery, and has obstetric origins, similar to those leading to stillbirths. World Health Organization reports over 6.3 million perinatal deaths a year, almost all of which occur in developing countries, and 27% of them in the least developed countries alone. Stillbirths account for over half of all perinatal deaths. One third of stillbirths takes place during delivery, and is mostly avoidable.
2. Intrapartum deaths (i.e., those occurring during delivery) are closely linked to place of, and care at, delivery. According to WHO reports, in developing countries, just over 40% of deliveries occur in health facilities and little more than one in two takes place with the assistance of a doctor, midwife, or qualified nurse.
3. Neonatal involves death through the end of the 27th day of life and usually reflects physiological problems during pregnancy that cause pregnancy complications and premature delivery. Various reports state, that in developing countries the risk of death in the neonatal period is six times greater than in developed countries; in the least developed countries it is over eight times higher.
4. Post-neonatal is death of infant from day 28 of life up to 1 year. Post-neonatal mortality is usually associated with social and environmental factors early in the infant's life, even though deaths from birth defects also occur in this period.

Causes

The most common cause of infant mortality worldwide include premature birth, low birth weight, birth defects, sudden infant death syndrome (SIDS), pneumonia and dehydration from diarrhea. Infanticide, abuse, abandonment, and neglect are other factors behind why some infants die before their first birthdays [1].

Methods of Estimation

Empirical data is used to estimate infant mortality in a given region. When no survey or registration data point is available, the neonatal mortality rate is estimated from the under-5 mortality using a regression adjusted for AIDS [10]. The reliability of infant mortality estimates depends on accuracy and completeness of reporting and recording of births and deaths. Underreporting and misclassification are common, especially for deaths occurring early on in life.

Disaggregation

A full report presents infant mortality data by race, origin of the mother, birthweight, period of gestation, sex of infant, plurality, trimester of pregnancy prenatal care began, maternal age, maternal educational attainment, live-birth order, mother's marital status, mother's place of birth, maternal smoking during pregnancy, age at death, and underlying cause of death [2].

Relevance to Childhood Development

The survival of infants in their first year of life is very important factor that is widely accepted as an indicator of the general health and wellbeing of a given population.

According to the latest UNICEF report almost 10 million children under five died worldwide in 2006, of which 4 million die within the first month of life, half of these within the first 24 h. Many of these deaths are related to the lack of adequate medical and nursing intervention at the time of birth [9].

The five countries with the highest rates of infant mortality were Sierra Leone, with 270 deaths per 1,000 live births; Angola with 260; Afghanistan with 257;

Niger with 253; and Liberia with 235. In contrast, Sweden and Iceland were among the countries with the lowest mortality rates – 3 deaths per 1,000 live births [3].

The report notes, that in developing counties: "Pneumonia kills more children than any other disease – more than AIDS, malaria and measles combined. It is a main cause of deaths in every developing region." The report goes on to note how other factors such as malnutrition and environmental conditions play a crucial role in heightening the vulnerability of children to pneumonia [6].

While considering the efforts on reduction in infant mortality in a given country, it is essential to know the top leading causes and underlying causes of mortality in children in the country, the policies and strategies to address them, and progress of work in those areas [7].

Income levels and education, both at the societal and individual levels, are closely associated with infant mortality.

Prevention

In developing countries simple movement against infant mortality, especially post neonatal mortality can reduce infant deaths due to diarrhea and infectious disease and other causes. This can be achieved through basic public health actions like promoting health care, providing nutrition, and non-formal education to preschool children and to pregnant and lactating women, offering sex education, adolescent clinic services, and community support and involvement [4]. Finally, early and continuous prenatal care helps recognize conditions and behavior that may result in low birth weight babies, such as smoking, drug and alcohol abuse, inadequate weight gain during pregnancy and repeat pregnancy in 6 months or less [5, 8].

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Infantile Amnesia

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Synonyms

Childhood amnesia

Definition

The inability to recall events from early childhood.

Description

Infantile amnesia is characterized by a relative absence of memory before the ages of 3 or 4 [1, 5]. This term does not refer to a complete absence of memories but rather a scarcity of memories during infancy, memories that can later be influenced by individual experiences and cultural factors as well as how these early events are remembered and relayed to the children by parents [2, 9]. A few people can apparently recall momentous experiences that occurred when they were as young as 2 years old, such as the birth of a sibling but not earlier. Of course we all retain procedural memories from our toddler years, when we first learned to use the spoon, drink from a cup and take our first steps, just as we can retain semantic memories acquired in early life (the rules of counting, names of people and things, etc.). However, as

adults we can no longer remember being fed as an infant by our parents, taking the first steps or saying our first words. That's the result of infantile amnesia [5].

Explanations for Infantile Amnesia

Infantile amnesia was first formally studied in 1893 by the psychologist Caroline Miles [1] but it was Sigmund Freud who offered one of the most famous and controversial explanations of infantile amnesia when he tied the phenomenon in with his other psychological theories [1, 5, 8, 9]. Freud theorized that infantile amnesia is the result of the mind's attempt to repress memories of traumatic events that occur in the psychosexual development of every child. These memories, according to Freud, have disturbing sexual and aggressive content and that's why they are suppressed. This would lead to the repression (Definition 1: Repression according to Freud is the classical defense mechanism that protects you from impulses or ideas that would cause anxiety by preventing them from becoming conscious.) of the majority of the first years of life [1, 4, 5, 8, 9].

Cognitive developmentalists claim that adults have trouble recalling the events of childhood because they no longer think as children do. As adults we use very different cognitive schemas (Definition 2: A schema is an outline or image universally applicable to a general conception, under which it is likely to be presented to the mind (five dots in a line are a schema of the number five; a preceding and succeeding event are a schema of cause and effect.)) from those we use in early childhood, and these adult schemas are not useful in restructuring early events from the memories stored at that time. As preschoolers we may encode our experiences far less elaborately since our information processing abilities are still limited and thus have very few cues for retrieving early memories later on in life. Only after we begin school do we learn to think as adults do, use language to organize memories and store not only events but thoughts about those events [9].

Researchers who argue that the development of the cognitive self is crucial in the establishment of autobiographical memory do not disagree that developments in language, socioemotional and memory factors are also play an important role in autobiographical memory. Research has shown that what's lacking in early infant memory is not simply a memory capacity or a language system but rather the development of self as a cognitive entity, a personal frame of reference that constitutes memory autobiographical in a unique way [5]. According to this theory, children develop self-awareness by about 2 years of age and memories are inherently associated with one's sense of self. When memories are encoded before self-awareness develops they are not comprehensible to the individual even though some information is stored in the brain.

Biological researchers believe that the brain and the nervous system are not entirely formed in young children and thus do not allow for the development of adequate memory stores and effective retrieval strategy. Evidence for this comes from three different sources. First, that the hippocampal region of the forebrain is immature in young children. Second, that the prefrontal cortex is immature at birth and undergoes a period of rapid synaptogenesis (Definition 3: Synaptogenesis is a process involving the formation of a neurotransmitter release site in the presynaptic neuron and a receptive field at the postsynaptic partners, and the precise alignment of pre- and postsynaptic specializations.) toward the end of the first postnatal year along with the improvement of other cognitive tasks. Finally, the third source states that these changes in synaptic efficiency or hormonal modulation that follow certain types of stimulation may only become functional beyond infancy [5, 9].

Another explanation attributes the cause of infantile amnesia to the incomplete development of language in young children. This theory states that infants do not have the language capacity to encode autobiographical memories in such a way that their adult selves can interpret correctly. Research by Gabrielle Simcock and Harlene Hayne showed children's inability to translate early, preverbal experiences into language because they lacked the language skills to do so. As a result these experiences could not become part of autobiographical memory since they could not be encoded [4, 8]. This theory seems to be supported by the typical process of language development. The language of 1-year olds is limited to one-word utterances and childhood amnesia predicts that adults have very few, if any, memories of this time. By the age of three children utter two or three word sentences and by their fifth year their speech resembles that of an adult. This language development seems to correspond to infantile amnesia because most adults' earliest recallable memories go back to the age of 3 or 4.

Recent research has found patterns in the extent of infantile amnesia and the most prominent ones are gender and race. Research has shown that in general the earliest recollections of females are earlier and more vivid than those of males, and this pattern is due to differences in how males and females interact as children, especially the types of conversations they have [3, 6].

Race has also been shown to play a role in the effect of infantile amnesia as in certain studies Asian adults reported significantly later memories than European

adults, while Maori (Definition 4: Maori are one of the aboriginal inhabitants of New Zealand; Maori was also the original language of New Zealand.) adults, whose traditional culture puts an emphasis on the past, reported significantly earlier memories than adults in the other two cultural groups. In all three cultures the memories reported by females contained a lot more information than those reported by men [6].

Relevance to Childhood Development

Infantile amnesia provides an explanation to the adults' inability to recall events and experiences from their early years. People often find infantile amnesia difficult to accept and often claim to remember events from the first or second year of life. Researchers who explore childhood cognitive development, and continue to research infantile amnesia aim to identify new characteristics and possible explanations for this phenomenon. Whatever the explanation for infantile amnesia, scientists agree that our first memories may provide some useful insight into our personalities and they prove to be an important social tool.

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Infantile Hypotonia

►Hypotonia

Infant–Mother Attachment Studies, of Ainsworth

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Synonyms

Attachment theory

Definition

Mary Ainsworth's seminal research on infant–mother attachment built upon John Bowlby's Attachment Theory to describe different patterns of infant-caregiver attachments. It led to the development of a classification system of these relationships, the Ainsworth Strange Situation, which serves as a "gold standard" for attachment classification in infancy [6]. Basing her work on extensive home-based observations and cross-cultural data paid testimony to the universality of the development of early social relationships in humans.

Description

Thousands of studies in child development have been published on infant–mother attachment formation, and all are based on the seminal research of Mary Ainsworth and her academic descendents whom conducted research under her supervision and training workshops [7]. Attachment Theory was based on principles from psychiatry, ethology, evolution, and personality development, but Ainsworth is credited with emphasizing the developmental elements of the theory and building on the observational methodology required to assess relationships. Her research in the 1960s [1, 3, 5] was a foundation for John Bowlby's trilogy on Attachment, Separation, and Loss, which delineated Attachment Theory.

Ainsworth initially conducted hundreds of hours of observations of infant–mother pairs in Uganda [2] and Baltimore [6] to investigate how relationships develop in two distinct cultures. Parent–child pairs ultimately balance the competing demands of proximity-seeking, which a relatively helpless infant requires for survival, and exploration, which an infant needs to interact with

the environment and maximize her or his own development. She observed that infants exhibited different kinds of behavior during naturalistic separations and reunions with their mothers [5], and consequently developed the Strange Situation as a laboratory procedure to systematically observe this behavior, classify the relationship, and thus examine individual differences.

The Strange Situation consists of eight sequential episodes in which an infant plays with its mother, a stranger enters the room and joins the interaction, the mother leaves, the mother returns for a first reunion, the mother then leaves the baby alone in the room, the stranger returns, and then the mother returns for the second reunion while the stranger leaves. This sequence is recorded and detailed behavioral coding takes place later that focuses on proximity- and contact-seeking behavior, contact-maintaining behavior, resistance behavior through poor distress resolution, avoidance of the mother during reunion, search behavior during separation, and positive social signaling from a distance. These ratings are used to classify babies into three groups that are well-known in child development: insecure-avoidant, secure, and insecure-resistant. What was essential to this research was that this lab-based behavior was related to other home-based observations, as well as observations of how sensitive mothers were to infant cues and needs. But she carefully distinguished infant–mother attachment from other developmental processes such as cognitive abilities of the infant.

Building on its ethological roots, Ainsworth's research emphasized the importance of detailed and extensive observations of social behavior both in the home and in laboratory behavior. The scripted social interaction of the Strange Situation stressed the importance of standardized methodology and objective scoring criteria. The classification system emphasized the developmental aspects of Bowlby's attachment theory, gave researchers a way of examining individual differences in early relationships, and served as a model to examine different kinds of intimate relationships later in childhood and even into adulthood [4]. Participants in the initial wave of attachment research of the 1970s are now entering mid adulthood, and thus long term predictive validity studies have been published in the past 10 years, and more are on the way.

What constitutes a threat to a person and thus activates the attachment system changes radically across age, as do the means by which proximity-seeking and avoidance are displayed, and the internalization of relationship processes into the cognitive domain necessitates other means of assessment. But Attachment Theory is relevant from "cradle to grave," and Ainsworth's research dominates how we conceptualize the cradle end of things.

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Inference

Inference is a process of drawing conclusions by applying logic and reasoning to observations to predict future phenomena. The conclusion drawn is also referred to as an inference. Human inference is traditionally studied within the field of cognitive psychology.

Infix

►Morpheme

Inflexible-Explosive Children

►Temper Tantrums

Information Persistence

►Iconic Memory

Information Processing

►Critical Thinking

Ingestion

►Drinking

Inhalants

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Synonyms

Dusting; Huffing; Poppers; Whippets

Definition

Breathing in vapors or gas through the nose or mouth for a soothing effect.

Description

Inhalants are breathable chemicals that are commonly found within the home (ex. cleaning fluids, air fresheners, and gasoline). Chemicals are inhaled in the nose or mouth (known as, huffing) with the purpose of having a mind-altering experience. Intoxication last only a few minutes which causes the user to continue use over long sessions to remain intoxicated. Common effects of intoxication are: lack of coordination, dizziness, slurred speech, and possible aggression. Some users may also experience hallucinations and delusions. Physical side effects caused by inhalants are vomiting, nausea, and confusion. Long-term abuse of inhalants may cause permanent damage to the lungs, brain and central nervous system. When inhalants are consumed in high dosages heart failure may also occur. This is known as "sudden sniffing death". Inhalants are easily available and legal to have for any environment. Most at risk uses are young children and adolescents.

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Inhibition

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Synonyms

Repression; Self-control; Self-restraint; Suppression

Definition

Inhibition refers to an active suppression process that functions to help people refrain from giving in to an urge when doing so could result in undesired consequences [14]. Having extreme difficulty with inhibiting behavior in a way that impairs daily functioning is a hallmark of the common childhood behavioral disorder, Attention-Deficit/Hyperactivity Disorder (ADHD). A variety of assessment techniques are employed to measure inhibition, including observer-rating scales, neuropsychological tasks, and cognitive tasks.

Description

Effective daily functioning often requires behavioral inhibition and the role of inhibition is particularly important in childhood. For example, a very young child might struggle to resist the urge to eat a cookie before dinner and a school-aged child might struggle to resist the urge to cheat off of a classmate's paper. The processes involved in resisting such urges are commonly referred to as self-regulatory or inhibitory control processes [12]. Inhibition is a construct that is frequently included in models of executive functioning - a higher order concept that describes the control of thought and behavior. While there is no widely adopted definition of inhibition, there are a number of behaviors and behavioral tendencies that most scholars use to describe the construct. Such behaviors might include suppressing an active or prepotent process, having the tendency to withdraw in a new situation, or reacting to something unfamiliar with initial avoidance, distress, or subdued affect [2, 3, 9].

Inhibition is measured on a continuum; that is, some people are generally more inhibited than others [4]. At the lower extreme are those who are described as *inhibited*, or

who tend to exhibit more restraint and self-control when faced with the urge to engage in an undesirable behavior in range of different situations. At the upper extreme are those who are described as *uninhibited,* or who have a tendency to react spontaneously or almost as if without thinking in nearly all situations [8]. Although a person may be consistently described as generally inhibited or uninhibited from childhood through adulthood, for most individuals, the ability to inhibit oneself tends to sharpen to some extent across development [15].

Within the normal range of functioning, inhibition plays an important role in child development. Behaviorally, uninhibited children are more likely to try new things, act independently, and learn and explore more aspects of the world around them than their inhibited, shy, and less risk-taking counterparts. Although this type of exploration and independence is often positive and can foster a child's development, being uninhibited can, at times, lead to unwanted outcomes. Specifically, uninhibited children may be at greater risk for unintentional injury [13]. For example, an uninhibited child who sees a ball roll into the street may be less likely to consider the outcomes of running into the street and may dart out in traffic to get the ball.

A child with an uninhibited behavioral profile may also encounter difficulties in the school and home environments. Children who are less inhibited may have a harder time attending to and learning new material and may require increased discipline and redirection. A child who has a harder time resisting the urge to talk to his friend in class is also likely to miss his teacher's instructions for a task or miss the explanation of an academic concept while he is talking. These types of behaviors can not only decrease a child's ability to progress academically, but can, at times, result in social disapproval by classmates due to the frequent negative attention the child receives. However those who fall on the inhibited end of the spectrum tend to be more shy, which is particularly evident not only in social situations with peers but also in unfamiliar situations. These children may also be less likely to speak up to ask questions in class or when something is making them uncomfortable.

Clinical levels of inhibition or disinhibition can contribute to child psychological disorders. Specifically, extreme disinhibition is a prominent characteristic of children with ADHD. It has been proposed that the principal cause of ADHD is a deficit in behavioral inhibition or in the ability to suppress a prepotent or ongoing response [1]. On the other end of the spectrum, extreme inhibition is a common characteristic of children with anxiety disorders. Psychotherapeutic treatments of such disorders are widely accepted, and longer-term cognitive and behavioral treatments have proven quite useful in the remediation of such conditions (e.g., [10]). However, research indicates that because the development and manifestation of inhibition is so complex, it is not easily improved or "cured" with simple "quick-fixes" (e.g., [5, 12]).

Given the multifaceted nature of inhibition, it is advisable for clinicians and researchers to use multiple assessment methods completed by multiple reporters to adequately assess inhibition. Assessment of inhibition in children is typically performed through observer-rating scales completed independently by parents and teachers (e.g., Child Behavior Questionnaire, Behavior Rating Inventory of Executive Function), neuropsychological tests, and cognitive tasks. Researchers have also utilized a number of pencil-and-paper cognitive tasks measuring behavioral inhibition for many years. Measures such as the "Draw-A-Line" and "Draw-A-Circle" task require participants to draw a line or circle as slowly as possible without stopping or lifting their pencil. These tasks present a restraint challenge in that participants are expected to experience the urge to quickly complete the circle. Those with lower levels of inhibitory control are expected to have a more difficult time resisting the impulse to complete the circle quickly [6, 11, 13].

Although paper-and-pencil methods such as the ones described above are still used, computerized neuropsychological tasks have become increasingly popular measures of inhibition due to their ease of use. One common instrument is a stop-signal paradigm which has been used frequently in pediatric inhibitory control research (e.g., [7, 15]). Two prominent examples of this type of task include the Go-Stop task and the Go/NoGo task. In both of these tasks, participants are asked to respond to visual stimuli (e.g., letters) in a controlled manner. That is, they are asked to respond (i.e., "go") almost immediately only after seeing specified stimuli and not to respond (i.e., "stop"/"no-go") to other stimuli. The more dominant "go" stimuli are presented more frequently than the "no-go" stimuli and thus create a more powerful tendency to respond. As participants become more engaged in the task, it becomes increasingly difficult to inhibit incorrect responses.

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Initiative Versus Guilt

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Synonyms

Erikson's preschool stage of social-emotional development

Definition

In Erickson's theory of social emotional development, the psychosocial conflict encountered during the preschool years, which is resolved by engaging in playful, creative, and or novel expressions and experiences. The degree to which children develop a sense of *initiative* is closely associated with the degree to which caregivers allow children to express themselves without being overly critical or punitive toward novel expressions.

Description

Initiative versus guilt is the third stage in Erikson's 8-stage theory of social-emotional development. This stage, also referred to as the preschool stage, can include many children in the age range of 3–6. During this period, Erikson postulated that children are faced with psychosocial conflicts about expressing themselves in unique, creative, and purposeful manners. He suggested that the extent to which parents or caregivers allow and encourage these types of expression contributes to the child's sense of *initiative*. Conversely, the extent to which parents or caregivers restrict or punish novel expressions contributes to the child's sense of guilt.

Erikson (1998), as well as numerous subsequent researchers, define *initiative* as "an emotional state, often acquired during the preschool years, in which children assert themselves, make creative attempts, take risks, and reach out to peers [2, 3]." The construct of guilt can be conceptualized as an emotional state in which children feel as though their actions are wrong or that they themselves are bad and lack worth [2, 5].

Remember that Erikson's work was influenced by the psychoanalytic work of Sigmund Freud [4]. It is during this stage that Erikson hypothesized that the *superego*, or conscience, is beginning to develop. He believed that the *superego* is shaped by experiences that young children have during this stage of his theory. He believed that a child's sense of *initiative* and a child's *superego* were closely related. Creative activities such as instances of pretend play influence the development of a healthy *superego* [1]. However, caregivers who are overly strict or overly punitive can lead to a guilt-ridden *superego* and a child who is overly critical of themselves and less inclined to make novel efforts in the future limiting a child's repertoire. Although an overly guilt-ridden *superego* is a detriment to future development, a sense of guilt is necessary for children to develop a healthy conscience.

Relevance to Early Childhood Education

Learning is discovering and to discover, one may fail before succeeding. A healthy sense of exploration or *initiative* is an advantageous characteristic to possess for success in any learning context. For example, active learning pedagogies such as inquiry learning or project-based learning require children to be motivated to engage in novel, but purposeful behaviors and accept failure and error as part of the learning process. Children who posses

more *initiative* are also more likely to approach peers in attempts to engage in collective activities such as socio-dramatic play.

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Inkblot Test

►Rorschach Inkblot Method
►Rorschach Test

Innate Language Acquisition

►Nativist Theory

Inner City Destitution

►Inner City Poverty

Inner City Poverty

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Synonyms

Inner city destitution; Low socio-economic status; Urban poverty

Definition

Poverty occurring in inner cities and urban areas that affects millions of people and has been associated with physical and psychological distress, economic hardship, and high crime rates.

Description

Poverty has detrimental consequences for quality of life, especially for inner city or urban residents. Children and families living in poverty have more stressful life events, higher unemployment rate, crime incidents, medical and mental illnesses, economic hardship, less access to education and health care, as well as less satisfaction with employment [8]. Given these chronic distress, strains, inadequate social support, coupled with distraught family relationships, incidents of psychological illnesses are widespread for the poor. For instance, Haring et al. [4] found that low socio-economic status is associated with depression and other mental illnesses, and lowered psychological well-being. Study has documented that urban poverty is more harmful than rural poverty due to the nature of urban environment [6].

Wilson and Aponte [9] found that 81% of African–American female-headed families lived in urban areas in which 57% of these families were below the poverty line. It was also estimated that close to one-half of the poor in the United States are single mothers with children [2]. It appears that urban poverty is especially harmful for single mothers, given they are required to raise children in bad neighborhoods, with limited resources and support. Similar trend continues to be observed more than 2 decades later. In a review of national data, Brooks-Gunn and Duncan [1] found dismal outcomes for inner city children. For example, poor children have higher incidences of medical problems, developmental delays, low birth weight, growth delay, lead poisoning, lower IQ and grades, higher dropout rates, severe emotional and behavioral problems, and higher number of teenage out of wedlock childbearing.

One of the major concerns for inner city poverty is the educational equity and quality for urban children. One challenge facing urban school district is recruitment and retention of highly qualified teachers. Studies have found that inner city teachers have tended to graduate from less prestigious training institutions, are less likely to have specialized subject areas, and have lower grades in universities. They are also less likely to have advanced degrees than teachers of more affluent school districts [3, 5]. For teachers, determining whether to teach at urban schools is a difficult one due to the implications for teachers, school districts, the poor, and the larger community. However, the unfortunate trend is that highly qualified teachers tend to avoid poor schools, while experienced teachers are leaving inner city schools at a record rate [7].

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Inner Landscapes

►Art Therapy

Inner Speech

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Synonyms

Self-talk

Definition

Talking to oneself but not uttering words aloud.

Description

Inner speech may include all of the ideas of verbal speech but in abbreviated form. In other words inner speech is a type of self-talk that assists children in organizing their cognitive processes. As children grow and mature this type of self-talk helps them to monitor their behavior or accomplish challenging tasks.

Metacognition can be facilitated by the use of inner speech, a kind of self-talk that enables students to direct and monitor their cognitive processing, and derive a deeper understanding and appreciation of their own thinking processes [1].

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Innovation

►Creativity

Inpatient Care for Preschool Children

►Hospitalization of Preschoolers

Inquisitive Behavior

►Active Exploration

Inquisitiveness

►Curiosity

Insanity of Early Life

►Childhood Psychosis

Insecure Attachment

- ▶Ambivalent Attachment
- ▶Avoidant Attachment
- ▶Disorganized/Disoriented Attachment

Insecure-Ambivalent Attachment

- ▶Insecure-Resistant Attachment

Insecure-Resistant Attachment

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Synonyms

Ambivalent attachment; Insecure-ambivalent attachment; Insecurity; Preoccupied attachment

Definition

Insecure-resistant (aka anxious-ambivalent) attachment is an attachment classification developed within attachment theory and initially described in the work of Mary Ainsworth and John Bowlby. Infants of this attachment category have excessive distress upon separations from an attachment figure such as a caregiver, and when the caregiver returns, tend to continue their distress and do not use their caregivers as a secure base [2]. Distress can take the form of crying, tantrums, and angry behavior toward the caregiver. In other words, the infant resists parent attempts to sooth the distressed child, is distrustful and uncertain that he or she serves as a secure-base. This creates insecurity, anxiety, and dependency that can continue within intimate relationships throughout the lifespan.

Description

The attachment system balances child needs to proximity-seek for protection and explore the environment. It is activated in times of distress and attachment figures are needed to serve as a secure-base. It is felt that insecure-resistant attachment is related to insensitive parenting that is inconsistent. This can be because parents are intrusive, not aware of what the specific needs are of a child at a given moment, or insensitively ignore or misread infant cues [4, 6]. Sometimes parents are available to serve as a secure-base, sometimes they are not. Over time, the infant learns that they cannot be sure if their needs will be met by the caregiver, and thus they are distrustful and over-solicitious of care. Preoccupation with care means exploration is restricted, and the emotional tone of the relationship is indicated by anxiety and insecurity. Because they are not sure if they have a secure-base, more events are seen as threatening, and the attachment system becomes hyperactivated. While a secure child can be soothed by a parent when distressed, a resistant child is difficult to sooth, although at the same time they are more dependent on or clingy with the parent [7]. Attachment style appears to arise from a parenting environment and is not a simple function of either temperament nor genetic influence [8].

In infancy, anxious-resistant attachment is assessed using behavioral observations of the strange situation and some of its variants. Normative samples show that 7–15% of infants are classified in this group in the United States with similar percentages in other countries. By the preschool age, attachment begins to be reflected in behavior which is more representational, and doll-play tasks, sentence completion tasks, and story-telling tasks have been developed. Figure 1, for example, shows a parent dropping off a child on her or his first day of school from the Separation Anxiety Test, and children are asked a series of questions about this scenario that probe for attachment-relevant information. Within each kind of task, the absence of secure-base themes can be examined, and the presence of excessive distress, worry and distrust about a parent's support, dependency and clinginess, and anxiety are present. In fact Bowlby's original formulation of this form of attachment was used to account for anxiety disorders and interpersonal problems later in life, and anxious-resistant attachment is predictive of these kinds of clinical problems. The percentage of children classified as insecure-ambivalent is similar to that in infancy, but there may be a shift in gender toward girls being more and boys being less likely to be in this category (insecure boys shift toward avoidance) [5].

In adolescence and adulthood, common methodology to assess attachment uses discourse methods to address the present state of mind with respect to attachment events [1]. Feeling unloved and inability to move beyond relationship events with parents is indicative of preoccupied attachment, which has conceptual and empirical continuity with anxious-resistant attachment. The other common approach is to use self-report methodology about either recollections of the caring and overprotection received from their own parents during childhood, or

Insecure-Resistant Attachment. Fig. 1

anxiety and avoidance reflected in their current romantic relationship. Bowlby initially proposed that attachment is really about yea/nea answers to two questions fundamental to interpersonal processes: Am I loved? Am I lovable? In romantic relationship research, answers to these two question lead to a two-dimensional model of attachment style, and individuals with an anxious-resistant background are not sure whether they are loved or not [3]. In other words, the uncertainty they have about using others as a secure base continues into adulthood, and leads to dependency within relationships. Constant affirmation that they are indeed loved is sought, but does not seem to have a lasting impact.

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Insecurity

►Insecure-Resistant Attachment

Insight-Oriented Approaches

►Psychodynamic Approaches

Inspective Behavior

►Active Exploration

Inspiration

►Motivation

Institutional Review Boards

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Synonyms

Committees for the Protection of Human Subjects; Human Subjects Review Boards; IRBs; Research Ethics Review Boards

Definition

Institutional committees that review research proposals to determine whether those proposals meet legal and ethical standards for protection of human subjects.

Description

The U.S. Department of Health and Human Services (HHS) [2] defines research involving human subjects as any research that involves one or more of the following activities: communication or interaction between a researcher and a participant; manipulation of a participant's environment by a researcher; observation and/or recording of a participant's behavior in a manner that leaves the participant identifiable to others; and/or gathering identifying information from records or other data sources. While innumerable advances in a variety of scientific and technological disciplines can be credited to research involving human subjects, such practices often involve risk to the individuals who participate. In addition to the risks inherent in the use of experimental treatments, a review of the history of human subjects research reveals many examples of studies involving either ethically ambiguous or clearly unethical practices on the part of researchers. These practices range from intentionally creating stressful situations for subjects (e.g., Stanley Milgram's research examining subjects' willingness to inflict pain at the direction of an authority figure), to knowingly withholding treatment likely to benefit participants, even when doing so is likely to lead to sickness and/or death (e.g., the Tuskegee Syphilis Study), to actively causing physical harm or death to subjects (e.g., Nazi experimentation).

Since World War II, many government agencies and international organizations have developed policies and regulations designed to protect individuals who participate in research studies. In 1979, the U.S. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research [3] published "Ethical Principles and Guidelines for the Protection of Human Subjects of Research" (also known as the Belmont Report), which identified three basic principles of ethical research: *respect for persons*; *beneficence*, or maximizing benefit and minimizing harm to subjects; and *justice*, or using equitable and fair practices to select individuals to participate in and benefit from research. HHS subsequently developed enforceable regulations designed to implement the findings and recommendations of the Commission. One of these regulations mandates the review of any proposed study at institutions where research is conducted (such as universities or hospitals) by trained committees that are specifically charged with the task of protecting subjects. These committees are known as *Institutional Review Boards* (IRBs).

To determine whether a research project is consistent with HHS guidelines, an IRB committee reviews both the actual materials to be used in the study (e.g., surveys, assessment instruments, consent forms) and a description, provided by the researcher(s), of the rationale for the study, the experimental procedure to be used, and the precautions taken to protect participants. Specifically, the researcher(s) must demonstrate that the proposed study involves or includes: either minimal risk to, or a positive risk-to-benefit ratio for, participants; fair and non-coercive procedures for subject selection; procedures for obtaining informed consent from participants (or their guardians, if applicable); and concern for the safety and confidentiality of participants.

HHS regulations state that IRBs must comprise at least five members from varied professional backgrounds. At least one member of the IRB should be a community member with no other affiliation with the institution. Diversity in IRB committee membership, both in areas of professional expertise and in demographic characteristics, is encouraged in order to incorporate a variety of perspectives into the review process.

HHS requires that IRB approval be sought for federally-funded research projects, but does not mandate IRB approval for privately-funded or non-funded research projects. Additionally, HHS exempts several specific types of federally-funded research projects from its IRB review requirement. Exempted projects include: studies conducted in schools or other educational settings examining educational practices that would be implemented whether or not the research was being conducted; research examining existing (i.e., archival) data, documents, records, or specimens; and studies conducted by agencies or organizations examining the benefit of programs that they administer. In each of these cases, data on human subjects must be recorded in a way that leaves human subjects unidentifiable; if subjects can be identified by

the data collected in a study, that study is no longer exempt, and must undergo the IRB review process.

Despite HHS's limited IRB review requirements, the vast majority of institutions require that all proposed studies using human subjects, whether or not they are federally-funded or appear to meet exemption criteria, be submitted for IRB review. In a recent study of researchers' experiences with their institutions' IRBs conducted by Ashcraft and Krause [1], 99% of respondents reported that all research using human subjects conducted by researchers affiliated with their institutions must be approved by their IRBs. Protocols that meet the federal exemption criteria referred to above may be reviewed using a streamlined process (sometimes referred to as an *exempt review*). Similarly, protocols that appear to pose minimal risk (i.e., no more risk than would generally be experienced by an individual during the completion of routine activities) to human subjects may be reviewed using an *expedited review* process.

Research involving non-human animal subjects is reviewed by Institutional Animal Care and Use Committees (IACUCs), in accordance with the provisions of the Animal Welfare Act (Public Law 89-544), rather than by IRBs. IACUCs review and monitor research protocols involving animals to ensure that such research is conducted under appropriate conditions by qualified staff, and that pain and/or distress to animal subjects is minimized, and that veterinary care is provided. In addition to their research-related responsibilities, IACUCs are charged with monitoring the facilities and conditions in which animal subjects are kept to ensure that the animals are cared for appropriately and humanely.

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Instruction

▶Discipline

Instructional Hierarchy

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Definition

A theoretical model of skill acquisition used as a basis for instructional placement and decision-making.

Description

The instructional hierarchy is a model of skill acquisition premised on the theory that children will best acquire skills through progressive instructional techniques beginning with content accuracy (see [1, 4]). Upon demonstrating adequate competency of the content (i.e., accuracy), instruction should then focus on training the learner to become fluent in the skill (i.e., high rates of accurate responding during timed probes). As fluency is achieved, the instructional hierarchy progresses to the promotion of the generalization of the skill to meaningful educational contexts. The final goal of the instructional hierarchy is to foster adaptation of the target skill to novel contexts and demands.

Relevance to Childhood Development

Under the Individuals with Disabilities Education Improvement Act of 2004, the United States federal government set in "response to intervention" model of determining special education placement in public schools. As such, students identified "at risk" are to be provided with empirically-supported treatments with their progress continually monitored to determine the degree to which their academic skills improve under more intensive teaching strategies. Failing to respond dictates that more intensive empirically-supported treatments be provided. Ultimately, if students fail to respond to highly intensive, individualized, and empirically-supported treatment, the student may then be referred to special education services. The instructional hierarchy aids in this process by providing educators and clinicians with a framework to identify

the instructional level of the at-risk student. Teaching at-risk students at their instructional level – utilizing the instructional hierarchy model – has proven successful in areas such reading (e.g., [3]) and mathematics (e.g., [2]) difficulties. Thus, the implications of this approach are that when students' instructional levels are identified, teaching them at their individual levels may keep them in general education and prevent unnecessary expenditure of special education resources.

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Instrumental Aggression

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Synonyms

Proactive aggression

Definition

Instrumental aggression is harmful behavior engaged in without provocation to obtain an outcome or coerce others.

Description

One of the most robust distinctions within the field of aggression is between hostile and instrumental aggression [4]. In contrast to hostile aggression, in which the perpetrator is impulsive, emotion driven and reactive, instrumental aggression is conceived as proactive, premeditated and cold-blooded [1, 3]. The goal of instrumental aggressive behavior is to obtain a preferred outcome or to coerce others. Instrumental aggression is founded in the social learning model of aggressive behavior in which aggression is learned through vicarious reinforcement and maintained by the expectation that this behavior will result in a reward [3]. Instrumental aggression is also associated with callous-unemotional traits such as lack of guilt and empathy and it can be either physical or relational.

Instrumental aggression predicts later delinquent behavior, Oppositional Defiant Disorder and Conduct Disorder [6]. Early hostile aggression predicts later instrumental aggression; however, the opposite direction of association between the subtypes has not been supported. This finding that hostile aggression precedes instrumental aggression is considered to be due to the difficulty young children have in modulating their emotional and impulsive behaviors. As these abilities develop, children can better moderate their behavior and engage in more controlled pro-social and anti-social behaviors [5].

The dichotomous view of aggression has been debated with some questioning whether there are two distinct subtypes of aggression. The argument against the subtypes contends that hostile aggression can also have instrumental goals such as retaliation or restoration of status [2]. In addition, instrumental aggression can be both hot-blooded and premeditated; the two concepts are independent [2]. Moreover, it is unclear how much planning should occur before a behavior is considered premeditated.

Relevance to Childhood Development

Aggression is often considered age-normative for very young children due to its frequency. Moreover, the frequency at which children engage in aggressive behaviors decreases with age as children develop better pro-social behavior skills. However, a small subset of children will persist in their engagement of instrumentally aggressive behavior eventually resulting in negative outcomes such as conduct disorder and delinquency. Instrumental aggression is also associated with callous-unemotional traits which are considered important for development of an anti-social pattern of behaving. The relative stability of aggressive behavior and associated negative outcomes emphasize the significance of this behavior.

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Instrumental Aggressors

►Proactive Aggressors

Instrumental Conditioning

►Conditioning
►Operant Conditioning

Insulin Dependent Diabetes

►Juvenile Diabetes

Integrated Education

►Classroom Integration

Integrated Language

►Whole Language Approach

Integration

►Mainstreaming

Integrative Classroom

►Classroom Integration

Intellectual Ability

►Mental Age

Intellectual Disability

►Developmental Disabilities
►Mental Retardation
►Mild Mental Retardation
►Moderate Mental Retardation
►Profound Mental Retardation
►Severe Mental Retardation

Intellectual Testing/Assessment

►Intelligence Testing

Intelligence

►Media

Intelligence Norms

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Synonyms

Norm-referenced intelligence testing

Definition

Intelligence test performance data collected from a sample of individuals that is thought to be representative of the general population for which the test is intended.

Description

Most modern tests of intelligence or cognitive ability are norm-referenced testing instruments. The norm samples for such tests are generally *stratified*, rather than random; in other words, they are selected to match the characteristics of the larger population with which the test will be used on variables of interest. For example, the developers of an intelligence test designed for nationwide use will likely attempt to recruit a norm sample in which the proportions of various demographic variables (e.g., age, sex, ethnicity, socioeconomic status, disability status, and educational attainment, among others) resemble those found in the general population, as indicated by census data. The test data gathered from the norm sample are subsequently used as a basis for assessing the performance of other test-takers.

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Intelligence Quotient

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Synonyms

Deviation IQ; Full scale IQ; IQ; Ratio IQ

Definition

A score representing overall level of performance on psychological tests of intelligence or cognitive ability.

Description

Intelligence quotients (more commonly referred to as *IQ scores*) provide quantitative information on an individual's overall performance on measures of cognitive ability. Early intelligence tests quantified cognitive ability in the form of "mental quotient" scores, which were calculated by dividing an individual's "mental age" (MA), or the age group in which the typical individual demonstrated the same level of ability as the test-taker, by that individual's chronological age (CA). In 1916, test developer and intelligence researcher Lewis Terman adapted this calculation method by multiplying the MA/CA ratio by 100 to yield an integer rather than a decimal; he referred to the resulting scores as an "intelligence quotient." In Terman's schema, typical performance for one's age was represented by equivalence between mental and chronological ages (i.e., by a *ratio IQ* of 100).

Most modern tests of cognitive ability permit calculation of an overall score, though not all tests explicitly refer to this score as an intelligence quotient or IQ score (e.g., the *Woodcock-Johnson Tests of Cognitive Abilities* – Third Edition yields a general intellectual ability, or GIA, score rather than an IQ score). Modern tests of cognitive ability generally yield ▶deviation IQ rather than ratio IQ scores; while these scores are derived using different calculation methods than those involved in ratio scoring, they are similar to Terman's scores in that typical performance is represented by a score of 100.

IQ scores have been found to predict achievement in a variety of domains (e.g., academic achievement, occupational success) and remain relatively stable over time. However, they do not represent exact measurements of cognitive ability. A variety of factors (including the specific test administered, the individual's mood or motivation level, or chance responding) may cause variability in scores. For this reason, IQ scores are often reported in the context of a *confidence interval*, which provides a range of values around a given score and indicates the percentage of times that the reported range should contain an individual's true score. For example, a 95% confidence interval of 95–105 reported for an IQ score of 100 would indicate that, 95% of the time, the test-taker's score on that test would likely fall between 95 and 105. Reporting scores in this manner emphasizes that IQ scores are not absolute measures of cognitive ability, and provides a more accurate representation of performance.

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Intelligence Testing

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Synonyms

Cognitive testing; General cognitive aptitude testing; Intellectual testing/assessment; IQ testing; Mental ability testing

Definition

Intelligence testing refers to the process of identifying, quantifying, and characterizing cognitive abilities by administration and scoring items designed for that purpose. Typically, methods and tasks used to assess intelligence are first investigated in the experimental laboratory and later adapted for administration according to a prescribed and standardized protocol. Standardized assessment allows individual-difference comparisons to peers. Some of the more common abilities assessed by intelligence tests include working and long-term memory, processing speed, vocabulary knowledge, numerical facility, and auditory and visual processing.

Description

Meaningful assessment of intelligence requires that the construct be carefully defined. Random House Webster's College Dictionary [12] describes intelligence as the capacity for learning, reasoning, and understanding; aptitude in grasping truths, relationships, facts, meanings, etc.; and mental alertness or quickness of understanding. Modern efforts to define intelligence began in earnest in the late 1800s. In 1921 a classic symposium was convened by the editors of the *Journal of Educational Psychology* entitled "Intelligence and Its Measurement," and attended by many of the prominent theorists of the day. It was not until 1985 that a similar event occurred, when Sternberg and Detterman recreated the earlier symposium by asking current expert the same questions (as those put to the expert in 1921) regarding the nature of intelligence. A book chapter written by Sternberg [17] provided over 20 definitions shared by these experts (in 1985). Many of the characteristics mentioned by the experts in 1921 and again in 1985 are similar to those listed in the dictionary definition provided above (e.g., ability to learn, knowledge, speed of mental processing, higher order components including abstract reasoning); however, there are salient differences (e.g., the experts also listed physiological mechanisms, executive processes, adaptation to the environment). Currently, there is not a consensus on the definition of intelligence, i.e., not all experts agree on its characteristics. Differences across definitions depends on the extent to which theorists focus on within-individual characteristics (e.g., working memory capacity, speed of processing, neural latency time) versus environmental variables (e.g., cultural expectations, rules), and the interaction between the two influences.

Obviously, intelligence is a multi-faceted and complex construct, and it is inferred from behaviors. Consequently, the measurement of intelligence is also complex. Just as there is no one controversy-free definition of intelligence, there is no single widely accepted measure of intelligence. And, to make the situation even more complicated, behaviors that might be considered intelligent in one culture may seem less so in another, depending on the extent to which the two cultures have developed different expectations for success. To understand the controversies and the contributions associated with use of intelligence tests, an awareness of testing history may be helpful.

History of Intelligence Testing

Although practically useful intelligence tests were not developed until late in the nineteenth century, the concept of intelligence is much older [8]. The Chinese recognized that varying levels of intelligence could be predictive of career success as early as 2000 BC, and Hindu scholars discussed intelligence in the Bhagavadgita around 500 BC, as did Aristotle (400 BC). But, the first really useful intelligence tests were developed based on the efforts of a number of educators and mental health workers from western Europe (4). For example, in France Esquirol, Itard, Sequin, and Binet focused on the study, treatment, and evaluation of the insane and mentally deficient, established the use of sensory-based evaluation and treatment strategies, defined the need for a classification system to diagnose mental retardation, and then used it to aid in making admission decisions to special schools and to

select civil servants. In England, Sir Frances Galton constructed simple tests of memory, motor, and sensory functions in an attempt to differentiate highly successful from less successful individuals, and was one of the first to use quantitative mathematical data analysis procedures. As a result, some refer to him as the father of mental testing [4]. In Germany, Ebbinghaus, Wundt, Wernicke, Kraepelin, and Cattell emphasized individual differences in a variety of sensory-motor tasks, as well as tasks of attention, memory, and higher order cognitive functions (e.g., ability to recognize similarities and differences among objects). In addition, these pioneers recognized the need for rigorous control in the testing situation and began to emphasize the use of standardized administration procedures. Many of these early innovations culminated in the development of the first useful intelligence test by Binet and colleagues (e.g., Simon, Henri) in 1895. The 1905 version, known as the Binet-Simon Scale was the first to acknowledge age-based cognitive development, contained items arranged by difficulty, was capable of diagnosing degrees of mental retardation, and became the prototype for subsequent scales [16]. The Binet-Simon Scale was used in Paris to identify children who had mental retardation, and particularly those who were less likely to profit from the typical educational curricula. Importantly, Binet was among the first to challenge the view that intelligence was genetically fixed at birth; he argued in favor of the view that intelligence is fluid, and is influenced significantly by environmental and cultural factors [7].

The testing movement flourished in the United States after the introduction of the Binet-Simon Scales. There were several revisions of the Binet-Simon Scale [1], the first of which occurred in 1908 by Henry Goddard and the second by Lewis Terman of Stanford University in 1916. This second version, called the Stanford Extension and Revision of the Binet-Simon Scale (shortened to the Stanford-Binet), included Louis Stern's concept of mental quotient, which is obtained by dividing the mental age by the chronological age. Terman and his associates renamed this ratio the intelligence quotient (IQ). This ratio IQ was used until 1972 when the deviation quotient replaced it in a newly normed version of the Stanford-Binet. The deviation quotient is obtained from direct comparison of an examinee's performance with same-age peers and specifically by comparing the examinee's score with the mean and variance of the population (of same-age peers).

The Stanford-Binet is now in its fifth edition [18]. The newest version of the Stanford-Binet has incorporated a number of innovations, some of which were introduced in scales of intelligence first developed by Wechsler in 1939 (e.g., pooling like items into subtests, pooling subtests together to form global scores subordinate to the most global score). Wechsler also integrated into the first Wechsler scale, called the Wechsler-Bellvue Intelligence Scale, Form I, ideas for items taken from existing tests (e.g., Information and Comprehension subtests from the Army Alpha; Arithmetic, Digit Span, Similarities, and Vocabulary subtests from the 1916 Stanford-Binet; Block Design subtest from the Kohns Block Design Test; and Coding and Digit Symbol from the Army Beta test). This test was the prototype for other similar tests (e.g., Wechsler Intelligence Scale for Children), and modern versions of these tests are still available. Tests like the Stanford-Binet, the Wechsler scales, and other commonly used scales (e.g., Woodcock-Johnson Tests of Cognitive Abilities-III; Diagnostic Ability Scales-Revised) are used when an examinee needs to be assessed using a psychometrically sound measure of intelligence. Most of these tests yield a general score, a cognitive ability composite, based on differential weighting of subtests, each of which measures a somewhat narrow component of intelligence.

Many experts use a statistical procedure called factor analysis to help them determine the nature of the psychological constructs assessed by the tests they use. Factor analysis relies on correlation coefficients as a starting point. These coefficients express the strength of the relationship between two variables, and will be described in more detail below. When scores from several subtests are entered into a factor analysis correlation coefficients are created first, then the procedure aligns scores to maximize similarities within the data set such that subtests assessing the same or similar subconstructs combine, forming factors. For example, a test containing 12 subtests may assess primarily six factors, with two subtests defining or *loading* on a particular factor (e.g., working memory), two more on another factor (e.g., processing speed), and so on. This strategy is used to identify the number of factors within a battery, and a more sophisticated version of the process, called confirmatory factor analysis, is used to test the extent to which the factor structure of an intelligence test conforms to a theoretical model presumed by test authors to underlie the particular test. Factor analytic procedures are commonly used to determine the subconstructs assessed and the relationship between various subconstructs. For example, the Wechsler Intelligence Scale for Children-IV assesses primarily four basic factors or subconstructs of intelligence: verbal comprehension, perceptual organization, processing speed, and working memory. Another commonly used test of intelligence, the Woodcock-Johnson Tests of Cognitive Abilities, is based

on the theoretical and experimental work of Raymond Cattell, John Carroll, and John Horn (CHC Model), and assesses comprehension-knowledge, long-term retrieval, visual-spatial thinking, auditory processing, fluid reasoning, processing speed, and short-term memory. Confirmatory factor analysis provides considerable evidence in support of the WJ-III's ability to assess these abilities [20].

Most current individually administered intelligence tests are model-based, meaning that they were developed to assess the subconstructs of intelligence considered important by the test authors. For example, as mentioned above, the WJ III was designed to assess the CHC model of intelligence. Similarly, the Cognitive Assessment System, or CAS, was developed by Naglieri and Das [11] to assess the following subconstructs of intelligence: planning, attention, simultaneous processing, and successive processing (i.e., PASS model). Other commonly used individually administered tests include the various Wechsler scales designed for either preschoolers, children, or adults, the Differential Ability Scales [3], the Kaufman Assessment Battery for Children-II [6] and the Kaufman Adolescent and Adult Intelligence Scale.

Relevance to Childhood Development

Originally, tests of intelligence were developed primarily to predict academic functioning. And, they perform that role well [16], in part because authors of the most widely used tests are careful to incorporate into the test development process procedures that ensure strong psychometric properties (e.g., reliability, validity). In addition, intelligence tests predict relatively well other important outcomes (e.g., job success). Evidence in support of these conclusions comes from studies reporting correlation coefficients. As mentioned above, these coefficients are statistical indicators that define the magnitude of the relationship between any two variables. Correlation coefficients reflect the power of one variable to predict another, and range from −1.0 to +1.0. A value of 0 indicates a complete lack of relationship between two variables and consequently, no predictive relationship. On the other hand, 1.0 defines the maximum overlap between two variables, and consequently, perfect prediction. The literature contains hundreds of studies showing relationships between various measures of intelligence and academic and job performance. Most of these studies show moderate to moderately strong correlations coefficients, typically ranging from 0.50–0.70 for academic measures and 0.30–0.60 for job-related measures. Because of the large data base, educators know that children with high scores on intelligence tests will likely earn concomitantly high scores on measures of academic success and grades. Likewise, those who earn low scores on intelligence test are also likely to earn low academic achievement test scores and grades. One traditional interpretation of these data is that academic performance is influenced by intelligence. Of course, the relationship is somewhat reciprocal. Those who excel academically gain knowledge that can then be displayed on cognitive subtests designed to assess retention of vocabulary, relationships among objects, and so on.

For years, test of intelligence have been prized for their predictive power. However, many of those who use intelligence tests currently expect more from these tests. In particular, the goal of many examiners is to use the pattern of cognitive strengths and weaknesses obtained from the testing process to partly explain current academic failures/successes and to use this knowledge to help inform intervention strategies. The basic assumption that underlies this expectation rests on the aptitude x treatment model. This model assumes that educators can use cognitive strengths to plan academic interventions. For example, using result from administration of the CAS (which assesses planning, attention, and simultaneous and successive processing) an examiner might find that simultaneous processing is a relative and normative strength. Because simultaneous processing relies on the ability to understand relationships among elements of to-be-learned content in a holistic pattern, as opposed to processing these elements in serial order, it is assumed to rely significantly on visual-spatial patterning. Consequently, an examinee with a simultaneous processing strength might profit more from use of visual aids, such as flowcharts, maps, diagrams, and so on, than on a presentation relying on a auditory, sequential presentation (e.g., auditory lecture). Of course, recommendations built on such theoretical assumptions should be tested for each child assessed rather than assumed. This aptitude x treatment paradigm is intuitively appealing and logical, and although there is some research support for this approach [8], much of the literature is equivocal; more research is needed.

Another use of intelligence tests relies on the ability of short group-administered tests to screen students who function at the extremes of the intellectual distribution. Because intelligence is roughly normally distributed [5] those that function two or more *standard deviations* below the mean are often identified as mentally retarded assuming they have concomitant deficits in adaptive behavior; similarly, those who function two or more standard deviations above the mean are sometimes identified as gifted/talented. These individual are among the most extreme, approximately within the bottom and top 3% of the population, respectively, and consequently may profit from

specialized intervention (e.g., special education services). Individuals who are identified as significantly low or high by a group testing process may go on to be tested using individually administered intelligence tests. Results from the individually administered tests may then be used at the identification stage for identifying those who have mental retardation and those who are gifted/talented.

Because intelligence tests have been used to help identify children for special education services and because there has been overrepresentation of minority children in these classes in many states intelligence tests came under intense scrutiny, particularly since the 1970s. Tests were accused of being biased against minority children by many educators and policy makers. In the main, these accusations have not been supported by careful statistical analyses [14], though many of the most widely used intelligence tests produce lower mean scores for members of minority groups. As analyses have shown, differential mean scores across groups do not necessarily indicate bias against the lower scoring group, though a lower mean score is often taken as a red flag, and invites more scrutiny of the tests producing such scores. One of the beneficial outcomes of the increased attention devoted to producing fair(er) tests has been the development recently of a spate of really good nonverbal intelligence tests. These tests are based on the assumption that language may *not* provide a good window on the intellect for all individuals, although it does for many. Language may be a barrier for examinees who are deaf or have limited hearing, those who have other language-based deficits, those who are from non-mainstream cultures, and those who may be emotionally impaired (e.g., pathologically shy). Some individually administered multi-dimensional nonverbal tests include the Leiter International Performance Scale-Revised [15], the Universal Nonverbal Intelligence Test (UNIT) [2], and the Wechsler Nonverbal Intelligence Scale [19]. Some group administered tests include the General Ability Measure of Adults (GAMA) [10], the Naglieri Nonverbal Ability Test (NNAT) [9], and the various versions of the Raven Progressive Matrices [13].

In summary, although humans have made informal judgments about the intellectual ability of those in their environment for thousands of year, practically useful formal tests of intelligence tests have been around only since the late 1800s. In some ways modern tests are very different from their early predecessors. For example, they are more sophisticated psychometrically, assess more functions associated with intelligence, are more likely to be based on theoretically conceptualizations of intelligence, are amenable to computer-based interpretation, and can provide more explanations for the cognitive abilities that underlie real-world performance (e.g., academic strengths/weaknesses). However, in other ways they are very similar to the early versions in content, administration format, and usefulness, i.e., they are still better at predicting performance than they are at providing remediation suggestions, though there is significant progress along this dimension. Innovations have not been linear, That is, most innovations have occurred within the past 25 years (since the early 1980s). In the future, authors of intelligence tests likely will continue to focus on relating intelligence to theories of intelligence, implications for treatment of academic and work-related deficits, and on discovering brain-behavior relationships related to intellectual performance.

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Intelligence Testing Without Verbal Communication

►Universal Nonverbal Intelligence Test

Intentionality

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Synonyms

Deliberate; Purposeful

Definition

A state of being or action that is deliberate or purposeful.

Description

Intentionality is purposeful and conscious action or state, and differs from desire which can be impossible to fulfill or fulfilled accidentally. Determining whether an action is right or wrong requires a more complex cognitive process than simply evaluating whether the outcome of the action is positive or negative. Therefore, differentiating the outcome from the intention is an integral part of child development. Children develop an understanding on intentions during the preschool years, and can distinguish intentions from desires by an average of 4 years of age [3].

Understanding intention is an important component for the development of theory of mind, moral thinking, and pro-social behavior. Theory of mind development is dependent on children's ability to infer intentions, desires, and emotions of others based, at least partly, on their understanding of their own. In addition, understanding intentionality enables children to develop more complex conceptions of moral responsibility in which the determination of blame is based not only on the severity or wrongness of the outcome but also the actor's intentions [4]. Moreover, a mismatch between a positive intention and negative outcome could result in feelings of sadness or guilt [1]. Furthermore, intention plays a role in planning and deliberate pro-social and anti-social action.

Assessments of intentionality are considered necessary mechanisms within cognitive models of aggressive thinking and behavior. Negative intentionality bias refers to the tendency to attribute hostile intent to a perpetrator in an ambiguous situation that lacks clearly hostile or benign cues. Aggressive children endorse more negative purposeful behavior to ambiguous situations than their non-aggressive counterparts suggesting a deficit in cognitive processing or cue identification in aggressive children [2]. These cognitive biases are thought to predict the aggressive behavioral response. For example, if a child believes that they have been acted upon negatively on purpose, they would be more likely to believe a retaliatory response was justified and act accordingly.

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Interaction Theory of Language Development

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Definition

The theory that language is acquired from an interaction of a human's innate biological capabilities to acquire language with exposure to language in the environment in which the child is developing.

Description

The interaction theory of language development is a compromise between the nativist theory and the behaviorist theory of language development. The interaction theory recognizes that both environmental and biological factors are important in language development [2]. Within this theory of compromise are theorists who are closer to one end of the extreme than the other. However, all interactionists believe that language acquisition occurs as a result of the natural interaction between children and their environment, more specifically, their parents or caregivers.

For example, interactionists believe that language is a byproduct of children's social interactions with the important people in their lives. Vygotsky [4] believed

that children developed thought and language by actively interacting with adults. He stated, "The child's concepts have been formed in the process of instruction, in collaboration with an adult" (p. 191). Like Vygotsky, interactionists believe that language develops as a natural consequence of these interactions and that it progresses to more complex levels as the interactions mature [1]. The more mature interactions provoke more complex language structures from parents and caregivers, and this cycle continues until children's language and social skills reach adult levels.

Relevance to Childhood Development

While interactionists agree with behaviorists that parents and caregivers play a significant role in language acquisition they also agree with nativists that children come to the language acquisition process with innate cognitive and linguistic abilities. They do not believe that either of these ideas is the most important aspect in language acquisition. Instead, interactionists believe that the single most important influence on language acquisition is children's interactions with the important people in their environment. Indeed, it has been determined empirically that children reared in language-rich environments with adult caregivers whose language styles match their focus of attention, have enhanced vocabulary skills at and early age [3]. These enhanced vocabularies in turn prove to enhance reading abilities in elementary grades.

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Interethnic Friendships

►Cross-Race Friendships

Intergenerational Transmission of Divorce

►Sleeper Effect of Divorce

Internal Conflict with One's Views of the World

►Identity Crisis

Internal Dialogue

►Self-Talk

Internal Monologue

►Self-Talk

Internal Motivation

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Synonyms

Autonomous motivation; Intrinsic motivation

Definition

Internal motivation describes the engagement in or attraction to an activity for the sake of enacting the activity, such that there is no known external incentive for said activity.

Description

Two types of internal motivation have been discussed in the literature: that which arises out of direct enjoyment for engaging in a given task, and that which comes from a sense of internalized obligation or responsibility to engage in a task [6].

In order to fully understand internal, or intrinsic, motivation it is necessary to gain a working knowledge of its conceptual opposite: external motivation. External motivation is the result of external reward or incentive. Also referred to as extrinsic motivation, this occurs when a person acts in order to obtain something, such as praise or tangible rewards [6].

Several theories have sought to clarify the determinants of internal motivation. Self-determination theory (SDT) describes internal motivation as a form of

autonomous motivation. This line of research has shown that people have an inherent need to feel competent, autonomous, and connected to others, and are best off when allowed opportunities to engage in goal-directed activities that serve these ends [1]. A behavioral explanation for internal motivation is also provided by operant theory, which asserts that one always performs an activity due to some type of incentive or reward [2]. This reward may be a tangible reinforcer or even a feeling that one has as a result of engagement in a task. The developmental progression or elicitation of motivational states has been studied extensively. Some examples of researchers and their respective theories include: Bernard Wiener's Attribution Theory; self-efficacy studies by Albert Bandura; locus of control and goal orientation discussed by Julian Rotter and others; and scaffolding for the Zone of Proximal Development (ZPD) as demonstrated by Lev Vygotsky [2].

Substantial research conducted by Deci and Ryan on SDT has demonstrated that human well-being is based upon the provision for the essential needs of competence, autonomy, and self-determination [5, 7]. Their research has proposed that intrinsically motivated behaviors are engaged in to meet these emotional needs and fulfill our sense of well-being. In summary, essential needs are linked to intrinsic goals, such that intrinsic goal pursuit is inherently associated with providing for one's needs which enable a sense of well-being [4]. Healthy personality development and integration is likewise positively correlated with one's fulfillment of intrinsic needs or goals, and personal value found in daily activities can therefore be said to enhance one's sense of well-being [5, 7].

Internal motivation has been said to be responsible for the drive toward mastery of a task, and is associated with greater interest, excitement, and confidence for the given task [7]. Greater achievement of goal progress, and increased quality of life, in terms of self-fulfillment and satisfaction in general, have similarly been found to be a product of internalized motivation [4]. Altruistic or selfless behavior is also associated with internal motivation, as such behaviors are pursued in the absence of tangible rewards [2].

Relevance to Childhood Development

> Intrinsic motivation has emerged as an important phenomena for educators – a natural wellspring of learning and achievement that can be systematically catalyzed or undermined by parent and teacher practices
>
> (Ryan & Stiller, as cited in [6]).

For an educator, knowing how to foster the internalization of goals valued by teachers and schools is a key aspect of student success. Motivation and its internal and external subtypes have been studied thoroughly by educational psychologists since the 1970s [2]. Internal motivation has been correlated with enhanced academic achievement and student satisfaction [8]. Furthermore, it has been shown that individuals with increased internal motivation believe that their behavior is responsible for their success [2]. As a result, they view their abilities as non-fixed structures that are changeable. It follows that those with sufficient internal motivation will likely hold the perception that they play a valuable role in whether or not they can or will reach their goals. This internal locus of control (LOC) is hypothesized as an aspect of one's sense of self-competence [2].

Many have debated whether extrinsic rewards weaken internal forms of motivation. Self-determination theorists argue that providing rewards will undermine the natural interests a child has in her or his own goals or activities. Other theorists have opposed this argument, and provided evidence that certain forms of reward work to stimulate one's internal motivation [3].

Teachers who utilize methods that encourage student autonomy, choice, and self-direction, instill more intrinsically-based motives for achieving one's potential [6, 7, 10]. These results can be generalized to settings outside of the classroom. For example, parents who have supported autonomy in their children find related increases to their children's grades and tests of achievement. Greater autonomy in the parent–child relationship has likewise been linked to healthier lifestyle choices, and strengthened social and career goals for children [6, 7].

Both internal and external motivation for school performance has been shown to be greater in children who are also enjoying school [9]. It has been furthermore deduced that school children who lack positive social interactions are not as likely to enjoy school, which in turn leads to lowered motivation for school-related activity [10]. Likewise, children who are raised in home environments that provide support and education in a non-controlling manner, motivate a child, internally, to fall in suit with household rules and expectations [10].

Theories of motivation have proposed to understand how this concept it is engendered and maintained. A largely researched area, the effect of reward and incentive, has been studied to determine the most effective intervention strategies for influencing children's behavior and supporting the development of motivation.

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Internal Symbols

▶Symbolic Thought

Internal Working Models

▶Ainsworth's Procedure

Interpersonal Cognitive Problem Solving

▶Social Problem Solving

Interpersonal Engagement

▶Joint Attention

Interpersonal Intelligence

▶Gardner's Theory of Multiple Intelligences

Interpersonal Problem Solving

▶Social Problem Solving

Interpersonal Processes

▶Relationships

Interpersonal Skills

▶Social Skills

Interpersonal Understanding

▶Perspective-Taking

Interracial Friendships

▶Cross-Race Friendships

Intervention Satisfaction

▶Social Validity

Intimacy Versus Isolation (Erikson's Young Adult Stage)

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Definition

"When childhood and youth come to an end, life, so the saying goes, begins" ([4], p. 100). According to Erik

Erikson, the young adult's life begins with the development of *intimacy*, the capacity to commit oneself "to concrete affiliations and partnerships and to develop the ethical strength to abide by such commitments, even though they may call for significant sacrifices and compromises" ([1], p. 263). Intimacy requires a firmness of ego strength or identity formation, as a central feature of Erikson's sixth stage is the ability to find oneself by losing oneself in another. Erikson is careful to not limit intimacy to affiliations of a sexual nature, but also includes friendship, combat, and inspiration as potential sites for intimate encounters.

Description

In the third chapter of *Identity, Youth and Crisis*, Erikson individually introduces and explains each of the first five stages of the life cycle (from infancy to adolescence). However, the three succeeding adulthood stages are addressed collectively under the subtitle "Beyond Identity." While one might consider the aggregate treatment of adulthood as evidence of Erikson's preferential treatment of the early stages of life, one need only examine the significance of the subtitle – "Beyond Identity" – to understand the grouping of the life cycle's latter stages. The intimacy of young adulthood tests the firmness of identity established in adolescence. The psychosocial transition to adulthood begins in adolescence, as the youth is challenged to achieve a sense of ego identity. Adolescents emerging from the fifth stage and in search of identity are often eager to fuse with the identity of others, but an appropriate ego strength is vital to withstand and endure the intimate encounters of young adulthood. The deep involvement required for intimacy with another demands ego strength to put one's own individual identity at risk ([5], p. 51). Hence, the earliest stage of adulthood is marked by movement beyond an adolescent fragile identity, threatened by role confusion, to a more secure identity in young adulthood that is capable of taking chances with itself to explore and develop intimate relationships.

Erikson posits that the young adult who has evolved beyond the identity crises of adolescence is capable of experiencing intimacy in working or studying for a specified career, socializing with the other sex, engaging in erotic encounters, entering into marriage, or starting a family. Consistent with the psychoanalytic tradition of emphasizing genitality as a condition for maturity, Erikson views erotic encounters with the opposite sex as a particular developmental milestone of intimacy. He highlights that though sexual intimacy may precede true and mutual psychosocial intimacy, sexual maturity requires a sense of mutual devotion. He explains:

> Before such genital maturity is reached, much of sexual life is of the self-seeking, identity hungry kind; each partner is really trying only to reach himself. Or it remains a kind of genital combat in which each tries to defeat the other. All this remains as part of adult sexuality, but it is gradually absorbed as the differences between the sexes become a full polarization within a joint lifestyle ([3], p.137).

The tenets of mutual devotion and shared identity, vital elements of both sexual maturity and intimacy, provide a framework for Erikson to introduce the virtue of love as the human strength assigned the sixth stage of the life cycle.

Erikson defines love as a "mutuality of devotion forever subduing the antagonisms inherent in divided function" ([2], p. 129). In *Insight and Responsibility,* he identifies love as the greatest and most dominant of the human virtues, and explains why love is assigned to a particular stage. Indeed, love could be seen as the virtue binding other stages together; love can be observed in instances ranging from the infant's attachment to the mother to the "adolescent's passionate and desperate infatuation" ([2], p. 127). However, Erikson believes that love evolves and transforms from receiving love throughout preadolescence to intentionally caring for others in adult life. Adult love is marked by mutuality as mates and partners develop a shared identity and engage in a process of "mutual verification through an experience of finding oneself, as one loses oneself, in another" ([2], p. 129). In this sense, love, like intimacy, is strongest when identity can be risked to enter into relationship with another.

As intimacy with others is the result and test of firm identity formation, true engagement is challenged when ego strength is weak. Since intimacy, in its best sense, requires selfless devotion to another, persons with weak egos who attempt intimate relationships are in jeopardy of "interpersonal fusion amounting to a loss of identity" ([4], p. 134). Lacking such true engagement causes the ego to lose its flexible capacity to risk itself in the affections of others. Over time, repeated unsuccessful attempts at intimacy may lead to *isolation*, the inability to make sacrifices and compromises in order to intimately affiliate with others.

A form of such isolation and a counterpoint of intimacy in Erikson's sixth stage is distantiation: "the readiness to repudiate, isolate, and if necessary, destroy those forces and people whose essence seems dangerous to one's own" ([3], p. 136). In its worst sense, distantiation results when individuals struggling to maintain identity

differentiate sharply and cruelly between the familiar and the foreign. This framework moves beyond competitive and combative attempts at creating intimacy to extreme polarization and blind prejudice. Though a distantiated person may develop relationships with persons familiar to them, the quality of these relationships is still marked by isolation and is antithetical to intimacy. Erikson further explains, Intimacy with one set of people and ideas would not be really intimate without an efficient repudiation of another set. Thus, weakness or excess in repudiation is an intrinsic aspect of the inability to gain intimacy because of an incomplete identity ([3], p. 135).

Though distantiation and isolation pose significant obstacles to the young adult, even these negative outcomes can have desirable attributes that are necessary for continued development throughout the life cycle. For instance, even persons with strong egos must exhibit boundaries when intimately committing themselves to ideas and to others. Furthermore, in foreshadowing the seventh stage of generativity and its virtue of care, the ability to subsume oneself in the intimate act of caring for others poses great danger to the caregiver who lacks self-awareness and is unable to isolate or distance herself enough to establish healthy boundaries.

Relevance to Childhood Development

The goal of intimacy is to develop relationships marked by true engagement, shared identity, and mutual devotion. These characteristics, undergirded by the virtue of love, provide the groundwork for generative persons who are committed to guiding and establishing the next generation. Isolation, however, thwarts the process of connecting intimately to others, notwithstanding succeeding generations. The inability to develop intimate and loving relationships during young adulthood threatens the livelihood of developing children because young adults are those most often engaged in procreation and the raising of young children. Additionally, distantiated young adults are likely to become distantiated older adults, and will have the power to influence succeeding generations to also be blinded by prejudice and consumed with polarized notions of community.

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Intimate Friend

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Synonyms

Best friends; Chums; Close friend; Mutual friend

Definition

A reciprocal positive relationship between two individuals who typically view themselves as equals. This relationship is characterized by self-disclosure and trust.

Description

Friends share a mutual, dyadic relationship involving positive features such as cooperation, positive affect, guidance and support, effective conflict resolution, and companionship [10]. Researchers who study children's peer relationships evaluate friendship quality, or the extent to which particular friendships possess these characteristics. One key qualitative aspect of mutual friendships is intimacy, which involves disclosure of personal information, sharing feelings, and emotional support [11]. Friendships characterized by high levels of intimacy serve as a context in which youth can engage in self-exploration and solve personal problems. With intimate friends, youth experience loyalty, mutual understanding, and trust.

Developmental Changes in Friendship

From childhood through adolescence, the level of intimacy in close friendships increases significantly. In early childhood, children's views of friendship tend to be concrete, with friendships focusing on shared activities and parents facilitating and supervising social interactions. The role of intimacy in friendship becomes increasingly important during adolescence when youth emphasize the importance of loyalty and share intimate thoughts and feelings with their friends. Throughout adolescence, individuals acquire more intimate knowledge about their friends' lives, increase in levels of sharing and cooperation with friends, and are more sensitive to their friends' feelings [4]. In addition to increased levels of intimacy with age, friends become more similar to each other with respect to attitudes and values, personality characteristics, and academic performance.

Gender Differences in Friendship

The friendship feature of intimacy plays an important role in distinguishing girls' same-sex friendships from those of

boys. During late childhood and adolescence, girls report higher levels of emotional closeness and intimate self-disclosure in their friendships in comparison to boys [5]. The friendships of adolescent girls tend to focus on mutual goals and concerns, and exchange of feelings. In contrast, the friendships of adolescent boys center on activities such as sports and video games and involve higher levels of competition and conflict. One disadvantage of the higher levels of intimacy in girls' friendships is that girls tend to engage in corumination, which involves repeated discussions of problems and negative feelings with friends. Although these conversations contribute to greater feelings of closeness between friends, corumination is also associated with increased levels of anxiety and depression [12]. Because girls are more likely to exchange intimate information with their friends, at times they may use this information to engage in relational aggression, which involves harming another's reputation or sense of belonging. Ironically, the intimacy of girls' friendships may contribute to these friendships being more fragile [3].

Relevance to Childhood Development

Theoretical Background

Harry Stack Sullivan [13] was one of the first developmental theorists to emphasize that involvement in friendship makes vital contributions to children's and adolescents' psychological development. Sullivan outlined a progression of specific interpersonal needs that emerge across various stages of development. During the preadolescent stage (9–12 years), there is an emergent need for intimacy and consensual validation, which is fulfilled primarily through involvement in same-sex friendships or "chumships." With friends or "chums," youth learn to divulge and receive private information and to build a friendship that is based on loyalty and trust. Through interactions with intimate friends, the preadolescent builds a foundation of skills (e.g., cooperation, compromise, competition, empathy, mutual self-disclosure, perspective taking) to implement in same- and opposite-sex relationships during adolescence and adulthood.

Whereas Sullivan believed that the development of intimacy occurs before an adolescent's sense of identity is fully established, Erik Erikson [7] asserted that intimate relationships cannot occur until after an adolescent has developed a coherent sense of identity. According to Erikson's theory of psychosocial development, it is not until early adulthood that individuals who have established their identity during adolescence can participate in a truly intimate relationship. There is empirical support for both Sullivan's and Erikson's theories, with some individuals developing an identity before becoming involved in intimate relationships with friends or romantic partners, and other individuals establishing a sense of self by participating in intimate relationships.

Contemporary Research

Involvement in intimate friendships serves several key functions throughout development, including self-validation and ego support, emotional support, guidance and assistance, and reliable alliance [1]. In terms of self-validation and ego support, intimate friends enhance one another's self-esteem by providing compliments, expressing feelings of concern, listening, and seeking advice. Friends also serve as a source of emotional support, providing reassurance and a sense of security in new situations such as school transitions. Children and adolescents also turn to their friends for guidance and assistance, as friends devote a considerable amount of energy to helping accomplish each other's goals by providing advice and information. Friendship also promotes feelings of reliable alliance, which includes loyalty, faithfulness, and being available to provide assistance when help is needed.

Friendships characterized by positive features such as intimacy and support are associated with higher levels of self-esteem and lower levels of anxiety among youth [6]. Children and adolescents involved in friendships characterized by lower levels of intimacy and emotional support are at risk for internalizing difficulties such as loneliness and depression [9]. Friendship has also been linked to aspects of school adjustment, including academic performance, achievement motivation, attitudes toward school, and more positive emotional and academic adjustment across school transitions [8].

The influence of close friendships during childhood is also associated with relationship quality, feelings of self-worth, and mental health extending into adulthood [2]. Overall, intimate friendships during childhood and adolescence serve many important functions that impact both concurrent and long-term adjustment. Based on this research, interventions aimed at increasing the level of intimacy in friendships would likely lead to more positive emotional, social, and academic adjustment.

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Intimate Relationships

►Sexual Relationships

Intimidators

►Bullies

Intoxication

►Drinking

Intrapersonal Intelligence

►Gardner's Theory of Multiple Intelligences

Intrauterine Fetal Death

►Stillbirths

Intrauterine Growth Restriction

Synonyms

Intrauterine growth retardation; IUGR

Definition

Intrauterine growth restriction refers to the poor growth of a baby while in the womb. Specifically, it refers to a fetus whose weight is below the 10th percentile for its gestational age.

Description

Many different things can lead to intrauterine growth restriction. An unborn baby may not get enough nutrition due to heart disease in the mother, high altitudes, multiple pregnancies (twins, triplets, etc.), placenta problems, pre-eclampsia or eclampsia. Congenital or chromosomal abnormalities are often associated with below-normal weight. Infections during pregnancy that affect the fetus, such as rubella, cytomegalovirus, toxoplasmosis, and syphilis my also affect the weight of the developing baby. Risk factors in the mother that may contribute to IUGR include alcohol abuse, drug addiction, high blood pressure or heart disease, poor nutrition and smoking. Depending on the cause of IUGR, the fetus may be symmetrically small, or have a head that is normal size for gestational age, while the remainder of the fetus is growth restricted. If the mother is small, is may be normal for her to have a small fetus, but this is not due to IUGR.

Intrauterine growth restriction may be suspected if the uterine fundal height, or the measurement of the size of the uterus, is less than expected for gestational age. This condition is usually confirmed by ultrasound. Further tests may be needed to screen for infection or genetic problems if intrauterine growth restriction is suspected. Intrauterine growth restriction increases the risk for intrauterine death. If this condition is suspected, the pregnant woman will be closely monitored with several pregnancy ultrasounds to measure the baby's growth, movements, blood flow, and fluid around the baby. Non-stress testing will also be done. Depending on the results of these tests, delivery may be necessary.

The prognosis for normal newborn growth and development varies by the degree and cause of intrauterine growth restriction. Depending on specific cause, intrauterine growth restriction increases the risk for a variety of pregnancy and newborn complications. Infants may have a non-reassuring fetal heart rate during labor, requiring delivery by c-section. Avoiding alcohol, smoking and drug use, along with receiving regular prenatal care can help control the risk factors associated with intrauterine growth restriction during pregnancy.

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Intrauterine Growth Retardation

►Intrauterine growth restriction

Intrinsic Motivation

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Synonyms

Internal motivation

Definition

Intrinsic motivation is when children engage in activities because they find the activities enjoyable.

Description

When individuals engage in activities that are personally enjoyable to them without the incentive of an external reward, they exhibit intrinsic motivation. For example, when a child has intrinsic motivation for a task, he will commit to the activity with enjoyment (such as a hobby), regardless of whether there are rewards or not. When a child practices piano simply because he enjoys it, he exhibits intrinsic motivation. Intrinsically motivated learners seem to have the most positive learning outcomes. They tend to engage in tasks willingly and are more eager to spend time to learn the material, and are more likely to process information and achieve at a higher level.

Children may develop intrinsic motivation due to the following reasons: curious about their world, interest in the activity, and value for the task. Children who are more competent in the task also have more intrinsic motivation.

Relevance to Childhood Development

Young children are often excited about going to school to learn new things and tend to have more intrinsic motivation to learn. As children get older, they become less intrinsically motivated. They become less confident as they encounter failures and become increasingly aware of how they perform as compared to their peers. In elementary school, children are given more opportunity to choose activities that they perceive to be enjoyable. During the transition from elementary to secondary school, children often experience anxiety and lose their intrinsic motivation. This is especially true when secondary educators focus on competition and the importance of good grades.

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Involuntary Swallow

►Swallowing Reflex

IQ

►Deviation IQ
►Intelligence Quotient
►Mental Age

IQ Testing

►Intelligence Testing

IRBs

►Institutional Review Boards

Isolation Aphasia

►Childhood Aphasia

IUGR

►Intrauterine growth restriction

J

Jacking Off

►Masturbation

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Life Dates

1842–1910

Introduction

William James is known as the "father of American psychology" and the "most American philosopher." His early, pioneering work on consciousness, emotions, habit, memory, the will, and the self, changed the way the American psychological community perceived and studied the human mind. James's biographers provide an unusually detailed portrait of his life because of the many letters he wrote to family and friends, and his journal entries, in which he expressed lucidly his innermost thoughts and ideas in their developing stages. Born on January 11, 1842, in New York City, James was an ardent believer in the importance of experiential learning in the construction of knowledge. Robert Richardson, the author of a major biography of James, has written about James's "love of spontaneity and activity and his positive fondness for chaos and chance" ([10], p. xiv). William James lived between multiple worlds (New England, various countries in Europe) and between multiple fields of study (art, medicine, psychology, philosophy); his academic and geographic transience fit well with his openness to ascertaining life's enduring lessons. James's diverse academic pursuits and innovative thinking made him a cultural pioneer. He was able to fuse his multifarious interests into a dynamic philosophical system and made lasting contributions to the study of religion and psychology.

Biography

William James was the oldest of five children born to wealthy, liberal New England parents Henry James, Sr., and Mary Walsh. His siblings were novelist Henry James, Jr., diarist Alice James, and Civil War officers Garth and Robert James. Henry, Sr., had a complex and difficult relationship with his own father, William of Albany, New York, an Irish immigrant. This pattern of a conflicted father–son relationship continued on a more subdued level in William's generation. William James's variety of vocational aspirations (art, medicine, science, philosophy) was the source of many interpersonal struggles with his father. His father's geographic unsettledness, which kept his family traveling between Western Europe and the United States, may have further added to William's educational and vocational identity confusion.

Educational Information

According to biographer Richardson [10], James attended nine schools before he enrolled in the Geneva Academy in Switzerland at age 17 in 1859. Even though his formal studies at the academy focused on anatomy and mathematics, James's interests extended well beyond the then conventional realms of education. The next year in 1860, the James family returned to New England so that William could study art with the renowned William Morris Hunt; despite his son's passion and talent, Henry Sr. considered art a hobby and not an appropriate or acceptable career for William. In 1861, at the age of 19, William decided against a career as an artist (perhaps acquiescing to his father's wishes) and entered Lawrence Scientific School at Harvard University to study chemistry. Although he later decided to switch his course of study to anatomy and physiology, he found life at Harvard quite agreeable.

James was in many ways self-taught. Following the end of this third term he took a respite from the Scientific School, during which he studied the classic works of some of history's greatest thinkers (e.g., Darwin, Comte, Quetelet, Spinoza, and Pythagoras). James systematically composed and compiled abstracts of what he read, beginning with Max Müller's "Lectures on the Science of Language" and continuing with Henry T. Buckle's essay on John Stuart Mill, and Jonathan Edwards' "Great Christian

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Doctrine of Original Sin Defended." The beginning of James' self-education took place against the backdrop of the Civil War, in which his brother, Garth (Wilky) James, was gravely wounded in duty as a soldier for the Union Army.

In 1864, he enrolled in Harvard medical school, but the opportunity for new life experiences and travel remained alluring. In 1865, James embarked on an 8-month expedition to Brazil, where he helped Harvard professor Louis Agassiz conduct field research along the Amazon River. The study focused on species of fish, as well as insects, reptiles, and larger animals. James traveled 2,000 miles up the river before he returned to medical school in the United States. Not long after his return, he traveled to Europe to attend physiology lectures in Berlin. His studies were interrupted as he experienced intervals of unhappiness, depression, and the residual effects of the smallpox that he had contracted in Brazil. In November of 1868, after a few more years of restless travel, William returned to Cambridge, Massachusetts, and passed his Harvard medical exams in June of 1869. Yet, for William James, M.D., this academic milestone did not fully resolve his occupational confusion. As James biographer Howard Feinstein [1] notes, "William still lingered indecisively amid the lost Atlantis of art, the necessity of science, and the allure of philosophy" well into the 1870s (p. 250).

Family and Professional Life

While he continued to independently study physiology, psychology, and philosophy, James was offered a 1-year position to teach physiology at Harvard College in 1872. Teaching was clearly therapeutic for James, defeating his demons of depression; he was popular with the students and his appointment was renewed. A half-dozen years after he began his career as a professor, he also began his life as a family man. He married Alice Howe Gibbens in 1878, and their first child, Henry, was born in 1879. He and his wife had four more children: William (b. 1882); Herman (b. 1884), who died 5 months after his birth; Peggy (b. 1887); and Aleck (b. 1890).

In addition to James's lifelong cross-disciplinary interests, his "partiality for biography and memoir – for narrative and of personal experience – stayed with him, feeding what, over time, became a central structural principle in some of his best writing" (Richardson, [10], p. 126). James's uncommonly poetic style of expressing his ingenious theories contributed to his distinguished career. This approach earned him enduring respect and admiration in the fields of both psychology and philosophy.

James died of heart failure on August 30, 1910, at his summer home in Chocorua, New Hampshire, at the age of 68. His ashes were buried in his family's plot in Cambridge Cemetery.

Accomplishments

Work in Psychology

There are many streams of thought in James's work. Each succeeding book possesses a more profound exploration of previously broached topics, magnifying ideas that were previously quick sparks of intellectual imagination.

His major publication was the 1890 two-volume work entitled *The Principles of Psychology* [2], which revolutionized the study of the mind and states of consciousness. This book project took James more than 10 years to complete and is comprised of 28 chapters on such topics as "brain activity," "habit," "the methods and snares of psychology," "the stream of thought," "the consciousness of self," "the emotions," and the "will." In *Principles,* James creatively combined natural science with the wisdom of a philosopher. In the chapter on emotions, he wrote that "the varieties of emotion are innumerable. Anger, fear, love, hate, joy, grief, shame, pride, and their varieties, may be called the coarser emotions, being coupled as they are with strong bodily reverberations" ([3], p. 241). Such insights demonstrate James's understanding of the intricate relationship between the mind and the body. James is recognized by psychologists as being the first to champion the revolutionary idea of a coherent connection between the immaterial and material spheres of the human being. For this reason, *Principles* earned him the title "father of American psychology." William James's theories continue to inspire the field of psychology today, especially through the shorter and more widely read version of the book, *Psychology: The Briefer Course.*

The issues that he presented in *The Principles of Psychology* assuredly inspired his next major publication, *The Will to Believe* [4], a compilation of ten works, including articles and lectures, in which James discussed the importance of belief to the human mind. He argued that humans make a particular choice to believe in a universe where good and truth exist, and he defends the right to believe. Linda Simon [11] noted that the essays "contain some of his most eloquent statements on the intellectual and emotional risks of religious belief; the philosopher's contribution to a society's moral life; the genesis and importance of genius; and the accomplishment of psychical research" ([11], p. 274). James's writing on the right or will to believe was a hinge between his psychological and religious studies.

Study of Religion

James experienced a series of unfortunate events in the last 2 decades of the nineteenth century, including the death of two of his younger siblings (Wilky, d. 1883, and Alice, d. 1892) and several dear friends, as well as his own health complications – both physical ailments and bouts of depression. These experiences likely prompted his reflective turn toward religious matters and, in particular, his search for the functions or fruits of religious experiences. In addition, James's complex relationship with his father, who, in defiance of his own strict Calvinist upbringing, had adopted a personal and detached spirituality, influenced William's search for a distinct perspective on religion.

Around the turn of the twentieth century, James began to make more frequent use of theological ideas in the lectures he gave in the United States and abroad. In 1901 and 1902 James delivered a famous series of lectures in Edinburgh, Scotland, as a part of the Gifford Lectures; the two-part series focused on natural religion or the idea that there is an organic, unprompted religious feeling common to all people. He argued that philosophers cannot fully capture human experience in their rhetorical thoughts and stories. Instead, he asserted that full human nature is demonstrated through religious experience, namely, engagement with whatever one considers the divine.

James's career constantly straddled the fence between the rigor of hard science and the importance of recognizing the variability of experience through philosophy and art. Throughout his Gifford lectures, James applied reason to the inexplicable parts of human existence and applied the scientific method to the study of religious experience, which he considered separate from institutionalized religion. His lectures were published as *The Varieties of Religious Experiences: A Study in Human Nature* (1902) [6]. The collection demonstrated the commonalities of religious experience across cultures throughout time and space, and became one of James's most important and influential works. It remains a foundational work in the study of religion.

Philosophical Pragmatism

In addition to his groundbreaking work in psychology and religion, William James was also a founder of the influential philosophy called Pragmatism, which arose from the post-Civil War struggle to redefine American culture in the absence of slave society and in the midst of what took its place, namely, ideological warfare, demagoguery, and the vivid appearance of class, racial, and gender conflicts. Pragmatists faced the challenge of relating ideas to practical material outcomes [13]. Americans needed a new way of thinking – a scheme – to help them make sense of modernity. William James, along with Charles Pierce, Oliver Wendell Holmes, and John Dewey, developed such a way of thinking and with their ideas, transformed the way Americans saw the world [9]. Pragmatism began as a method for mediating the contrasting philosophical approaches of these four men and their colleagues: the "tender minded" theorists who employ rationalism ("the habit of explaining the parts by wholes") and the "tough minded" theorists who use empiricism ("the habit of explaining wholes by parts") ([8], p. 7). It is also a philosophical approach to delineating truth. Philosophy must have an empirical *modus operandi*, and "make some positive connection with this actual world of finite human lives" ([7], p. 14). Pragmatism held that truth, in order for it to be so, must be verifiable through tested hypotheses and must remain so in a variety of circumstances. Theories, therefore, are instruments for abstracting the truth through a practical mode of understanding; truth is able to be repeatedly proven. James writes, "true ideas are those that we can assimilate, validate, corroborate and verify" ([7], p. 88).

James's move away from a narrowly defined scientific perspective toward more religiously and philosophically informed work in his last decade of life could also mark a means of redeeming the numerous family misfortunes he encountered in mid-life and later. "James not only survived numerous crises, but also achieved the kind of wisdom that only comes from suffering" ([12], p. 338). James wrestled with the mysteries of life through his writings, with each one showing his growth toward who *he* was and what *his* interests were, and away from the identity path constructed for him by his father.

Contribution to Child Development

In 1892, James addressed a group of teachers in Cambridge, Massachusetts, in a series of psychology lectures that were later published as *Talks to Teachers* [5]. This was arguably his most significant work in the field of child development and learning. In these lectures, he drew from the theoretical basis he had already established in *The Principles of Psychology*. Using general human psychological principles and applying them to students in classrooms, James discussed the child as a "behaving organism," practically oriented and acting out his or her thoughts within a stream of consciousness. He described "native reactions," or innate, automatic responses to outside stimuli. James encouraged those who work with children to use these responses as tools for teaching and learning in the elementary classroom. For example, fear, love, imitation, curiosity, and emulation are natural

components of the human developmental process. Beyond "fear of punishment" James urged that "love" (the instinctive desire to please those whom we love), "curiosity" (the impulse towards better cognition), and "imitation" (learning by observing role models) also be used in the classroom, making the most of the instinctual tendencies of even the youngest of children. James discussed habit formation, memory, attention, and association of ideas as important tools for the classroom, each one harnessing what is natural in child development.

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James-Lange Theory of Emotion

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Definition

First proposed by American psychologist James [5] and independently developed by Danish psychologist Lange [8], the James-Lange theory of emotion states that the immediate, primary cause of an emotion is physical. Bodily changes and physiological processes, which occur as a result of environmental stimuli, evoke certain feelings in the conscious mind. In this sense, emotions are bodily sensations or processes variously combined.

Description

The James-Lange theory can be illustrated by the following anecdotes. A child sees her father walk into the room carrying her toys. She begins to grin, her heart beats a little faster, her pupils dilate, and she runs toward him. These bodily changes represent the emotion of excitement. In a different instance, a man walking down a deserted street at midnight hears footsteps behind him. He looks back and sees a large figure approaching. The man converts his walk into a run, he breathes more rapidly, his nostrils flare, his eyes widen, and adrenaline flows through his veins. These bodily changes represent the emotion of fear. The emotions that these two individuals experience are different, of course, but the way each one responds physiologically plays an important part in both situations. The girl felt excitement because she smiled and charged ahead, the man felt afraid because he ran away, and not conversely [5].

History of the Theory

William James was the first psychologist to delineate the imperative role of physiological changes in emotional experience. For James, "The bodily changes follow directly the perception of the exiting fact and that of feeling of the same changes as they occur is the emotion" [5, p. 189]. Before his revolutionary 1884 publication, "What Is an Emotion?" [5], the scientific community widely believed that the reaction to a stimulus was cognitive, and that the bodily changes that resulted were primarily reactions to a thought. Only a year after James's work on this topic was published, Carl Lange independently published an article stating similar views on the importance of the physiological mechanisms of emotions [8]. Thus, the hypothesis of emotion became known as the James-Lange theory. Before this theory gained credence, an emotion was assumed to begin when a person interpreted an emotion-inciting stimulus, which was then followed by a bodily reaction. As an alternative, the James-Lange theory proposed that after the stimulus is interpreted, a bodily reaction occurs, which is followed by an emotional response [3]. In James's words, "quick as a flash, the reflex currents pass down through their pre-ordained channels, alter the condition of muscle, skin and viscus; and the alterations, apperceived like the original object, in many specific portions of the cortex, combine with it in consciousness and transform it from an object simply-apprehended into an

object-emotionally felt" [5, p. 203]. Though only a small modification in the order of events, this proposition changed the face of the field of psychology. Many research studies have demonstrated how emotions are induced after the body makes corresponding muscle changes. Today it is not uncommon for the instructor of an introductory course in psychology to conduct a demonstration in which half of the class members are asked to hold a pencil in their mouth sideways, like a dog with a bone, and half are asked to hold a pencil in their mouth longways, like a straw; while all class members rate how funny they find a set of cartoons. Students who engaged the muscles used to smile invariably find the cartoons funnier than students who engaged the muscles used to frown.

Critiques of the Theory

German psychologist Wilhelm Wundt, often cited as the founder of modern psychology, was one of the first critics of the theory of emotion proposed by the founder of American psychology. Wundt believed that feelings were primary and, thus, similar to other hard-wired primal sensations. Other critics, however, often overlooked a qualification made by the James-Lange theory, which is that a stark distinction can be made between the "coarser" emotions and the "subtler" emotions. James writes, "the varieties of emotion are innumerable. Anger, fear, love, hate, joy, grief, shame, pride, and their varieties, may be called the coarser emotions, being coupled as they are with strong bodily reverberations" [6, p. 241].What is important to note is that in the James-Lange theory, not all emotions are said to initiate strong physiological reactions. James clarifies that "softer" emotions such as "moral, intellectual and aesthetic feelings" do not have the same type of bodily response. For the latter type of emotion, there is a "thinness and paleness of these feelings, (and) when unmixed with bodily effects, is in very striking contrast to the coarser emotions" [5, p. 251]. But, as was James's pattern, his qualification followed his strongly expressed generalization. For James, nevertheless, incitation of the nervous system and the instantaneous physiological changes in the body are imperative for strong (or coarse) emotions and best represent the theory.

A common misconception of the James-Lange theory has incited considerable denunciation and refutation [3]. Many scholars have wrongly assumed that James meant that emotion is *only* the physiological changes, which is quite different from the arguments he presents in his publications on emotion [5], (James, 1884). Although the bodily changes are necessary for emotion, they are not the only component of an emotion [3]. (Unlike James, Lange stated without qualification that the actual physical changes, such as the constriction of blood vessels, *are* emotions.) Nevertheless, for both James and Lange, emotions do not just magically emerge in the mind and simply stay there, occasionally inciting physical manifestations of their existence. Strong (coarse) emotions without the physiological transformations incited by the perception and interpretation of a stimulus have little to no meaning. James writes that "a purely disembodied human emotion is a nonentity. . .emotion dissociated from all bodily feelings is inconceivable" [5, p. 194]. Moreover, "if we fancy some strong emotion and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find that we have nothing left behind" [6, p. 246]. Emotion is physical in its truest sense, causing bodily changes that are autonomic and instantaneous. Through the lens of the theory, emotion must be felt – in a physiological sense – in order to truly have a significant impact on the human psyche.

Perhaps the James-Lange theory of emotion is best understood in the context of James's interests in philosophy, psychology, and physiology. As shown in many of his writings, James revolutionized the conceptual framework for the mind-body connection as the basis from which to derive other psychological claims. For almost a century, many theorists either completely or partially rejected the James-Lange theory due to its radical stance on the physiological bases of emotion. For James, however, it was a testable hypothesis. If emotion is, in fact, the bodily responses to an outside stimulus, then it should be true that voluntarily executing actions that are normally associated with an emotion will cause that emotion. James, that is, realized that reactions to particular events as stimuli are, at least in part, taught by association and, as he expected, empirical research has supported the expected correlation for facial expressions, autonomic arousal, and instrumental behaviors. Not until the 1980s, however, did "neuroscience research on the role of peptides and receptor cells establish that (both) James-Lange and their critics were right in that emotions originate in both the body changes and mental perceptions" [1, p. 28]; cf. [2]. As Laird and Bresler [7] summarize, "through a self perception process, individuals "construct" their emotional experience from a variety of sources, including physiological responses, expressive behavior, instrumental behavior, and contextual elements" [7, p. 636]. Though the realm of emotion is still somewhat mysterious, the James-Lange theory first established that the body and the brain are coupled in emotional reactions; this discovery has sparked successive generations of scholars to contribute to understanding emotion in normal adults.

Relevance to Childhood Development

As a corollary of his theory, James writes, "it ought to be that any voluntary arousal of the so-called manifestations of a special emotion ought to give us the emotion itself" [5, p. 197]. If this is true, then children's lack of ability to control physical manifestations of emotion causes them to have less control over their emotions. Younger children, in particular, demonstrate this precise claim. James explains, "each fit of sobbing makes the sorrow more acute, and calls forth another fit stronger still, until that last repose only ensues with lassitude and with the apparent exhaustion of the machinery" [5, p. 197]. Inevitably, during the years of healthy development from childhood to adulthood, the brain and its behavior mechanisms mature, and a greater equilibrium is achieved in emotional regulation. Among the early critics of this hypothesis with regard to children and adult differences was psychoanalyst Ferenczi [4]. He argued that the James-Lange theory of emotion is not relevant for adults, but has only relevance to the construction of emotion in children. Ferenczi agreed that early childhood emotions do largely originate from bodily sensations, but he believed that, as older children and adults develop new capacities to control their emotions, everything changes. If, in fact, a direct connection exists between physiological events and the production of emotion, a way to synthesize emotion should exist as well. In a reciprocal cause-and-effect process, emotions and bodily reactions have an interdependent relationship. It should thus be possible to intentionally synthesize emotion from conscious physical changes, or to act out an emotion in order to produce the emotion.

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Jaundice

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Synonyms

Icterus

Definition

Jaundice is a condition characterized by the yellow discoloration of a person's skin and the sclerae of the eyes. This condition is a result of an increased level of bilirubin, the bile pigments in the blood resulting from various pathological conditions described below.

Description

Jaundice can present in a light lemon-yellow hue, indicative of haemolysis, or a green hue, indicative of severe hepatic disease or biliary tract obstruction. Jaundice can occur at any age, and the presentation and causes vary somewhat across age.

Jaundice in Adults

There are three types of jaundice in adults: (1) Haemolytic jaundice, in which the amount of bilirubin exceeds the liver's capacity to process it, and where the bilirubin is caused by an abnormal level of hemoglobin from the destruction of red blood cells; (2) hepatocellular jaundice, in which the bilirubin levels increase in the blood because the liver cells are either damaged or died as a result of viral infection or liver failure; (3) obstructive jaundice, or cholestatic, in which the bile cannot be discharged from the liver because the bile ducts are blocked by gallstones, an abnormal growth, or the ducts may be absent.

There are many causes of jaundice, including starvation, circulating infections, medications, and liver and pancreatic diseases. In adults, the causes of jaundice can be determined through a systematic historic evaluation and examination; jaundice can be associated with carcinoma of the pancreas, liver, and billiary tract in younger patients, and gallstones, hepatoma and hepatic metastases in middle-aged and older individuals. The deterioration of these organs can be a result of Hepatitis A, B, C, hematological disorders. Jaundice may be associated with ethanol and drug use.

Relevance to Childhood Development

Physiological jaundice is present in 60% of healthy newborn infants, and in 80% of pre-term infants, and it occurs

after the age of 24 h, with a peak on the third or fourth day of life, and it tends to disappear by the seventh to tenth day of life. Although physiological jaundice will not last past a couple of weeks, its persistence may indicate the need for further investigation of the origin of pathology. Some of these causes may be haemolysis, in the case of rhesus disease, or ABO incompatibility, red cell defects, extravascular blood, sepsis, increased enterohepatic circulation, galactosemia, hypothyrodism, decreased conjugation, bile duct obstruction, biliary hypoplasia, or neonatal hepatitis.

Breast milk jaundice is associated with breast-fed babies due to the existence of β-glucoronidase in the maternal milk, which contributes to deconjugating the bilirubin in the bowel, and increases its circulation in the blood.

Crigler–Najjar syndrome is a moderate to severe form of hereditary jaundice due to decreased conjugation.

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Jealousy Complex

►Sibling Rivalry

Jigsaw Classroom (JC)

►Cooperative Learning

Joint Attention

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Synonyms

Directing attention; Gaze following; Interpersonal engagement; Joint focus of attention; Shared attention; Shared focus; Social referencing

Definition

Joint attention appears in infancy, is a form of social cognition, and is characterized by the capacity of infants to coordinate their attention with that of a social partner [13].

Description

Joint attention occurs when two people are focused on the same attribute of their environment at the same time and both are aware of the other's focus on and interest in that attribute ([16]). Evidence for joint attention is demonstrated when the infant is able to share attention with, follow the attention of and direct the attention of another [4]. Infants engage in joint attention when they understand that other people have goals and that people are able to direct their personal attention in the pursuit of those goals. Each of the expressions of joint attention (sharing attention, following attention, directing attention) requires that the infant understand that other people are intentional. Shared attention is basic to all forms of joint attention and involves the infant and adult attending to an object of interest for a period of time. In addition, it requires that the infant look from the object to the person and back to the object. The alternation of gaze indicates intentionality on the part of the infant in incorporating another's attention into their own interests.

When infants begin to follow the attention of another, one can make a stronger case for the infant's ability to understand the other as an intentional agent. For example, when an infant looks where an adult points or looks where the adult looks, the infant indicates an understanding that the adult is intentionally focusing his attention on an object of interest.

When infants direct the attention of others, their own communication is judged to be intentional when it is goal oriented. Goal orientation is demonstrated when the infant persists until the goal is reached and alternates gaze between the other person and the goal [4]. Burner [3] suggests that the most sophisticated form of joint attention is the "meeting of the minds," the act of sharing full understanding with another person of an object, event, or action. The meeting of the minds requires understanding of the object or event within its context which comes from the joint participation of both individuals in a common culture.

Relevance to Childhood Development

Joint attention is fundamental to the development of social cognition and language. How infants come to understand that others have minds, intentions, and goals

and that language is the vehicle for communicating intentions and goals is intricately entwined in the development of joint attention.

Although discussion continues in the field regarding the timing of the emergence of joint attention in infants, enough evidence has accumulated to specify when components of joint attention emerge [1]. The development of joint attention begins at birth; when infants are alert and oriented to another person they are available for shared attentiveness with an adult. From 6 to 8 weeks of age, interpersonal engagement emerges as infants engage in affective reciprocity with others during face-to-face interactions. At 5 to 6 months of age, the next step in the development of joint attention takes the form of object engagement. In object engagement, infants show interest in objects and the manual skills to manipulate them and adults support their object exploration. The early stage of true joint attention emerges at 9–10 months of age when infants point, social reference, and request and refer to objects. Joint attention skills are consolidated at 13 months with the appearance of the infant's first words and with sustained episodes of joint engagement. By 18 months, symbols emerge in infants' interactions and infants are able to share with others a focus on objects that are absent and events other than present ones.

This developmental sequence demonstrates the overlap of joint attention skills with other developmental domains and the dependence of the adaptive development infants on the presence of joint attention skills. When children have deficits in joint attention, the consequences are profound.

For example, children with autism do not share attention with others unless it is to obtain something that they want. They do not seek affective reciprocity, do not share their interest in objects, and do not engage in social referencing. Children who do not engage in joint attention are typically severely impaired in language development [15]. Further, faulty joint attention predicts later difficulty understanding what others might be thinking when they say something or otherwise interact [14].

In summary, joint attention is developmental skill that emerges over infancy and forms the basis of social cognition and language development. The consequences of the disruption of joint attention skills are profound.

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Joint Family

▶Extended Families

Joint Focus of Attention

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Synonyms
Joint attention

Definition
Joint focus of attention is a triadic episode of interaction involving a caregiver, an infant/toddler and an object.

Description
During joint attention caregiver and infant share attention to an object thus providing a didactic experience for the infant (e.g., the caregiver names the object – "ball" while the infant is visually attending to the ball) [1]. At around the 1-year birthday infants begin to look to where the important adult is looking. In addition, infants begin to direct adult attention to external objects using gestures; thus, a triangle is formed in which the infant and parent or caregiver focuses her attention on an external object or event [3, 4]. The ability to focus attention on external objects and events provides the infant with the initial means by which to share experiences with others [8]. By allowing for the sharing of experiences, joint attention has a central role in the child's development of both social and communicative skills [2].

Relevance to Childhood Development
Research indicates that language acquisition is fostered by joint attention [9, 10, 11]. Specifically, when adults engage in attention-following behaviors for longer periods of time, language acquisition is enhanced [7]. The optimum time to engage in these specific types of joint attention is when the child is between the ages of 18 and 24 months [5]. Those children whose mothers engage in more frequent and longer bouts of joint attention during the period between 18 and 24 months score higher on vocabulary measures [7]. A strong correlation exists between vocabulary and reading ability, thus indicating that joint attention is a necessary developmental milestone in the future academic success of children [12].

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Joint Legal Custody

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Synonyms
Guardianship

Definition
Joint legal custody is a situation in which separated or divorced parents of a child share joint decision-making power over significant decisions in a child's life with respect to education, religion, medical care, and major activities requiring parental permission.

Description
Custody of children is either held by both parents, one parent as in sole custody, or a legal guardian such as an extended family member or children service agency. If parents are divorcing, there must be final dispensation of all outstanding assets of the marriage and a determination of the custody arrangement for the children. Prior to divorce, disputing parents may petition the court to determine custody matters in a separation agreement. Joint legal custody ends when children reach the age of consent, which in some jurisdictions is at 18 years.

Joint legal custody requires that parents be able to communicate with one another with respect to children's needs. This can be problematic if there is residual anger and conflict associated with the marital breakdown. A common source of confusion for parents is the difference between custody, which is legal decision-making, and access, which is where the child resides and the nature of contact with each parent. Joint legal custody does not mean that children reside with each parent an equal amount of time, for example, spending alternate weeks with one parent and then the other. In fact, joint legal custody is independent of access arrangements, although in sole custody decisions, the children would almost certainly reside with the custodial parent. There have been trends for joint legal custody to be more common and sole custody less common than decades ago.

Sometimes psychologists are asked by the court to conduct a custody and access assessment. The guiding principles of these assessments are to assess children's developmental needs and make recommendations on what arrangements would best meet these needs [4, 8]. These are required when parents and their respective legal counsel cannot come to an agreement suitable to both parties, so they can be contentious for parents. Accordingly, various psychology professional associations have written formal guidelines for their members to follow when conducting these assessments so that ethical, professional, and empirically-based standards are followed. The American Psychological Association has such standards [1], as do several provinces in Canada [7]. Around 40% of first marriages end in divorce in a variety of Western Countries, and children from the marriage are often involved, so it is not surprising that there are considerable self-help resources on the internet and in the popular press. Custody battles over children of public figures such as Hollywood stars garner considerable attention, but are atypical.

A custody and access assessment is not always needed when parents can avoid conflict and come up with their own arrangements. Professional assistance in the form of mediation may help with this for some couples [9]. Divorce is not easy on children, but it is harder when parents have their own psychological issues, there is ongoing conflict between parents, and financial support issues have not been worked out [2]. There is a positive impact on children of minimising conflict between divorcing parents and promoting positive mental health of each parent [6]. An understanding of child development, divorce, custody arrangements, and access scheduling is therefore very helpful [3, 5]. Joint custody can be advantageous in some situations, and children's adjustment in joint custody situations is generally more positive than in sole custody situations.

The process by which parents can make joint decisions about important aspects of a child's life and share access is called co-parenting. Conflict within the co-parenting relationship is stressful for parents and children, and can serve to disrupt effective decision-making and access transitions. It is important that parents separate their potentially negative feelings towards the other parent and their respect for the relationship between the other parent and the children. While marriages sometimes come to an end, a child will have the same biological parents for their whole lives.

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Journals

▶Personal Narratives

Juvenile Crime

▶Delinquency

Juvenile Delinquency

Synonyms

Crime, Adolescence; Delinquency

Definition

Participation in illegal behavior by a minor who falls under a statutory age limit." (Siegel & Welsh, p. 6)

Approximately 1.5 million youths under the age of eighteen are arrested each year for crimes ranging from drunk driving and drug use to gang violence and murder (Siegel & Welsh). The increase in violence and delinquency among youth has been a focus of study in the 20th century in addition to the creation and study of the juvenile justice system including all correctional agencies developed to address juvenile delinquency. (Siegel & Welsh) Many delinquent behaviors are attributed to breakdowns in family structure, reports of abuse and neglect, impoverished living conditions, and inadequate health care. (Siegel & Welsh) Programs addressing rehabilitation and treatment of juvenile delinquency as well as prevention have been developed but their efficacy is still under scrutiny. (Siegel & Welsh)

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Juvenile Diabetes

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Synonyms

Childhood-onset diabetes; Diabetes mellitus; IDM; Insulin dependent diabetes; Type 1 diabetes

Definition

Juvenile diabetes is a disorder of the autoimmune system that causes the body to cease the production of insulin. Pancreatic islet cells within the pancreas are destroyed, resulting in deregulation of blood glucose levels.

Description

The American Diabetes Association (ADA) states that the exact causes of diabetes are still uncertain, however, both environmental and genetic causes have been implicated [1]. Juvenile diabetes, or type I diabetes, is an autoimmune disorder that occurs as a result of the immune system attacking the insulin producing beta cells within the pancreas. These pancreatic islet cells are destroyed resulting in a lack of insulin within the body. Insulin is a hormone that converts sugar or glucose and starches into energy and is essential for survival.

Symptoms

A lack of insulin due to juvenile diabetes can lead to hyperglycemia, or high blood sugar that is typically marked by excessive thirst and urination, blurry vision, and increased sugar levels in urine. Furthermore, hyperglycemia can lead to a loss of consciousness and diabetic ketoacidosis (DKA) if untreated [2]. Alternatively, hypoglycemia, or low blood sugar is evidenced by increased perspiration, dizziness, confusion, nausea, and shaking. Hypoglycemia is usually the result of not eating, physical overexertion, or excessive insulin treatments [6].

Prevalence

In regards to prevalence, the ADA estimates juvenile diabetes to be one of the most common disorders in childhood with 1 case in every 400-600 children [1]. Additionally, the International Diabetes Federation (IDF) estimates that worldwide, 65,000 new cases of juvenile diabetes are expected annually in children under the age of 14 [3]. It has also been estimated that the national cost of diabetes (type 1 and 2 diabetes collectively) in the United States was $174 billion in 2007 when considering medical expenses and estimated loss of productivity [1].

Treatment

The treatment for juvenile diabetes is multifaceted [6]. Individuals are asked to closely monitor their dietary intake, monitor and test their blood glucose levels, receive varying amounts of insulin injections, limit physical overexertion, and reduce stress. Since carbohydrates greatly affect blood sugar levels, counting and accurately monitoring the amount of carbohydrates an individual consumes during meals and snacks is paramount. To inform the individual if any changes in dietary intake and/or insulin administration need to be implemented, testing of blood glucose levels is conducted. Blood glucose is usually tested via multiple finger pricks at set times throughout the day, such as before meals and bedtime. Insulin can also be administered through an insulin pump.

Complications

Adhering to this regimen limits short term complications through ensuring that individuals avoid low or high blood glucose levels. Potential long term complications of juvenile diabetes include damage to nerves and possible amputation of appendages, retinopathy and possible blindness, renal failure, and even cardiac damage. There is also some evidence that individuals with juvenile diabetes may experience some resulting cognitive difficulty. Specifically, individuals with diabetes may experience learning disabilities, difficulties with long term memory, processing speed, and executive functioning (e.g., [4, 5]).

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Juvenile Diabetes Mellitus

▶Diabetes

Juvenile Myelomonocytic Leukemia (JMML)

▶Childhood Leukemia

Juvenile Offending

▶Crime, Adolescence

K

KABC-II

►Kaufman Assessment Battery for Children, Second Edition

Kaufman Assessment Battery for Children, Second Edition

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Synonyms

KABC-II

Definition

The KABC-II is a reliable and valid measure of cognitive abilities of children ranging from ages 3-years, 0-months to 18-years, 11-months. It is a revision of the original KABC [1].

Description

The KABC-II was constructed using dual theoretical models: the Cattell-Horn-Carroll (CHC) model (see [7]) and [4–6] neuropsychological model. Administration time for the core battery varies based upon age from 30 to 70 min using the CHC model and 25 to 55 min using the Luria model. When interpreted using the Luria model, the KABC-II yields a Mental Processing Index (MPI) that excludes acquired knowledge [2]. Therefore, the Luria model of the KABC-II measures *sequential processing*, *simultaneous processing*, *learning ability*, and *planning ability* [3]. The CHC model of the KABC-II measures five broad abilities: *short-term memory* (Gsm), *planning ability* (Gf), *long-term storage and retrieval* (Glr), *visual processing* (Gv), and *crystalized ability* (Gc). However, planning ability is only included in ages 7–18 because a factor corresponding to planning was not discovered in children younger than 7 [3]. The FCI and MPI indices have a mean standard score of 100 and a standard deviation of 15.

The CHC model is the default model except in cases where the examiner believes that crystallized ability will compromise validity [2]. This could occur if a child has limited English language proficiency, has a language disorder, or has been diagnosed with Autism [2]. The KABC-II also provides a Nonverbal index (NVI) that is intended for use with children who are not fluent in English. The NVI can be administered in pantomime and responded to by pointing or other motor responses [3]. Kaufman and Kaufman [3] recommend that the NVI only be used when assessing children who are deaf or hard-of-hearing, children with moderate to severe speech impairments or language disorders, and children who are non-English-speaking. The NVI should never be used as a replacement for the FCI or MPI if a child does not have any of the aforementioned conditions.

The KABC-II demonstrated internal consistency in that the manual reports mean split-half reliability coefficients of 0.95 for ages 3–6 and 7–18 for MPI, 0.96 for ages 3–6 and 0.97 for ages 7–18 for FCI, and 0.90 for ages 3–6 and 0.92 for ages 7–12 for NVI. Results of confirmatory factor analysis provided construct validity for the KABC-II in that a four-factor model emerged for ages 4 and 5–6, and five factors emerged for ages 7–12 and 13–18. Correlations between the KABC-II FCI and WISC-IV full scale IQ was 0.89. KABC-II FCI and Woodcock–Johnson Tests of Cognitive Abilities General Intellectual Ability correlated at 0.78.

Relevance to Childhood Development

Kaufman et al. [2] outline many significant benefits of using the KABC-II to evaluate children. The authors note that the dual theoretical perspective offered by the KABC II is the first benefit to the assessment of children. The CHC model allows an examiner to examine cognitive strengths and weaknesses which can assist in developing specific intervention strategies which has proved useful in the assessment of specific presentations (e.g., learning disabilities). For example, Baddeley (1986) found that

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working memory, and accepted aspect of short-term memory (Gsm), is correlated with many areas of academic performance. In fact, both verbal and visual-spatial working memory tasks appear to correlate with math ability [9]. Therefore, if an individual appears to have a significant discrepancy between his or her short-term memory than other skills, it may provide evidence of the need for further assessment of math achievement. The KABC-II has also been shown to provide fairer assessment to minorities using the MCI index that excludes measures of acquired knowledge [2]. Finally, as noted previously, the KABC-II provides a nonverbal index that can be utilized with children who are deaf or hard of hearing, have language disorders or other speech difficulties, or are not fluent in the English language. Providing three separate scales not only provides the examiner increased flexibility but also alleviates the cost of purchasing a nonverbal cognitive assessment.

Critics have argued that the KABC-II does not properly represent fluid reasoning and suggest that supplementing the Gf measures from the KABC-II with measures of Gf from other intelligence tests batteries may be beneficial [8]. The authors themselves argued that some of the supplemental subtests may not clearly assess what they purport to measure. For example, Kaufman and Kaufman [3] themselves state that story completion measures visual-spatial and crystallized abilities as well as fluid reasoning abilities. Aside from noted complaints, the KABC-II remains a reliable and valid measure of cognitive abilities and provides many benefits to clinicians and others.

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Ketamine (Ketaset)

▶Depressants

Ketipinor

▶Quetiapine

Kinesthesia or the Kinesthetic Sense

▶Proprioception

Kinetic Family Drawing

▶Family Drawing

Kinship Care

▶Foster Care

Kinship Group

▶Extended Families

Klonopin (Clonazepam)

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Synonyms

Clonazepam (generic)

Definition

Klonopin is an anticonvulsant that belongs to a class of medications called benzodiazepines, which act on the central nervous system (CNS) to produce a calming effect by producing gamma aminobutyric acid (GABA), a naturally occurring chemical in the body. The generic form of Klonopin is Clonazepam.

Description

Klonopin is used to treat seizure disorders or panic disorder. It can be used alone or as an adjunct in the treatment of the Lennox-Gastaut syndrome (petit mal variant), akinetic and myoclonic seizures. It may also be useful in patients with absence seizures (petit mal), who have failed to respond to succinimides. Klonopin is also indicated for the treatment of panic disorder, with or without agoraphobia, as defined in DSM-IV. Unlabeled uses of Klonopin include treatment of insomnia, nystagmus, and restless leg syndrome.

Some side effects of Klonopin may include: drowsiness, dizziness, memory problems, fatigue, muscle weakness, loss of balance/coordination, slurred speech, drooling or dry mouth, sore gums, runny or stuffy nose, changes in appetite, nausea, diarrhea, constipation, blurred vision, headache, nervousness, insomnia, skin rash, or weight changes. More serious side effects, which require immediate medical care include: confusion, hallucinations, unusual thoughts or behavior, hyperactivity, agitation, hostility, involuntary eye movements, weak or shallow breathing, depressed mood, suicidal ideation, chest tightness, irregular heartbeat, painful urination, bruising/bleeding, or new or worsening of seizures.

This drug and other benzodiazepines may produce psychological and/or physical dependence. Due to these concerns, in addition to the potentially serious side effects and interactions with other medications, Klonopin should be used only under supervision of a medical professional.

This review of Klonopin contains general information. For complete information about Klonopin and individual use, a health care professional should be consulted.

Relevance to Childhood Development

The safety and effectiveness of using Klonopin to treat children and adolescents suffering from panic disorders or other psychiatric conditions are not well established. Though some reports claim overall efficacy in treating pediatric patients, these studies are not long-term. Most concerning is the risk of physical or psychological dependence. For children being treated for seizure disorder, benefit-risk considerations should be made.

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Klopoxid

▶Chlordiazepoxide

Knowledge

▶Wisdom

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Life Dates

1927–1987

Introduction

American developmental psychologist Lawrence Kohlberg spent his life in pursuit of universal justice. "Kohlberg

opened the eyes of psychologists and educators to the fact that people's moral thinking changes as they grow up, and that these changes continue to follow predictable stages of development as they grow older" [12]. He is best known among psychologists for his six-stage model of moral cognition and development. Kohlberg also developed three methods of moral education: adult role models as moral exemplars, peer interaction through moral dilemma discussions, and democratic participation in a morally grounded democratic school community, which he referred to as Just Community programs.

Laurence (original spelling) Kohlberg was born in Bronxville, NY, an affluent suburb of New York City, on October 25, 1927. His father, Alfred Kohlberg, was a wealthy textile importer with production facilities in China during World War II (Sino-Japanese War) and the Cold War. Alfred later became known as the head of the "China Lobby" due to his support of Chiang Kai-shek and right-wing politics (e.g., he was a fierce supporter of Joseph McCarthy and a founding director of the John Birch Society). Laurence's mother and Alfred's second wife, Charlotte Kohlberg (nee Albrecht), was a chemist who would later become a noted inventor in the field of plastics.

Early Life and Education

"Laurie," as his family called him, was the youngest of four children born to his nominally Jewish father and Christian mother. He attended Public School No. 8 in Yonkers and Mark Twain Middle School in Bronxville. In terms of his home life, his early years were marked by the privileges of wealth and an unusual degree of upheaval and dispersion. Just before Laurie was 4 years old, his parents separated; his father (who held temporary legal custody) and mother maintained a rotating 6-month custody arrangement from 1933 to 1938. In 1938 Charlotte sued to break the shared custody arrangement with Alfred. In 1941, however, a judge dissolved the custody order and allowed each Kohlberg child to choose the parent with whom he or she wanted to live. Fourteen-year-old Laurence and his older sister Roberta chose their father as their custodial parent.

Alfred Kohlberg hired a tutor to coach Laurence in Greek and Latin in order to prepare him to enter Phillips Academy, an elite preparatory high school in Andover, MA. His classmates there remembered him as a genuine intellectual who rebelled against arbitrary social conventions, such as rules that prohibited visiting girls on nearby campuses, and who often was placed on probation. As a high school student during World War II, he witnessed incidents of anti-Semitism, closely followed current events involving the Nazis' treatment of European Jews, and began to identify with his Jewish heritage. Alfred too had become involved in aiding European Jews through the United Jewish Appeal, but he also founded the American Jewish League against Communism (AJLAC). He loathed socialistic Zionism and was ashamed of Jews who had become communists.

After Laurie finished high school in 1945, he joined the US Merchant Marine. For the next 2 years he sailed on the U.S.S. George Washington and traveled to Europe, where he witnessed the aftermath of World War II and met Holocaust survivors. By the time his tour of duty ended, he had become a Zionist sympathizer and a nonviolent activist on behalf of victims of the war. As documented by Kohlberg's biographer, Robert E. Herzstein, the relationship between Alfred and Laurence was quite complex [2]. Laurence joined the *Haganah*, the Jewish defense organization in Palestine, and returned to Europe on the ship *Paducah*. Renamed the *S.S. Redemption* for its role for the *Haganah*, the vessel was outfitted to smuggle European Jewish refugees through the British blockade and relocate them in Palestine, then a British-controlled territory. Kohlberg served as its second engineer. He willingly broke British laws, which he saw as unjust, to assist desperate refugees. While en route to Palestine in October 1947, he and his fellow crew members, along with many refugees, were captured by the British and taken to an internment camp on Cyprus. Three months later, the *Haganah* provided the British with forged papers with false names and obtained the release of Kohlberg and others. Kohlberg made his way to Palestine but refused to participate in the fighting; he lived on a kibbutz until he was able to return to the US in 1948. Kohlberg's first published article appeared in the *Menorah Journal* in 1948. In this article he relayed his experiences on the *S.S. Redemption*. The account was entitled "Beds for Bananas," which alluded to the crew's cover-story to explain the dozens of wooden shelves lining the cargo area of the ship. The ship's cargo hold, outfitted for smuggling Jewish refugees, was said to be for hauling bananas.

In the fall of 1948, Kohlberg enrolled in the Hutchins College of the University of Chicago. He studied the philosophies of Socrates, Plato, John Locke, and Immanuel Kant, and the pragmatism of John Dewey. "Larry," as he now identified himself, concentrated his studies in philosophy, psychology, and sociology and acquired his A.B. degree in just 1 year by successfully completing a series of examinations. In 1950, at age 23, Kohlberg began his graduate work in academic psychology at the University of Chicago. His choice resulted in part from the continued influence of the great philosophical questions he pondered aboard the *S.S. Redemption,* in Palestine, and at the

University of Chicago: "What is virtue?" and "What is justice?" Kohlberg was dissatisfied with the answers provided by the dominant schools in psychology: Freudianism and Behaviorism. Kohlberg proposed that the foundational virtue is justice, which he defined as equity or equal respect for all people.

Research and Theory Development

As early as 1950, Kohlberg began refining his quest to elaborate a universal, non-relative theory of justice and eventually integrated into his theory the views of developmental psychologist Jean Piaget (1896–1980), who found that cognitive development was implicated in moral development. The amalgamation led Kohlberg to search for the cognitive-developmental foundations of universal moral principles. He began the empirical work for his dissertation in 1955, using a sample of 84 Chicago boys aged 10–16 years. With an interest in the structural-developmental model Piaget had employed to delineate his theory of cognitive development in children [10], Kohlberg conducted interviews in which he used moral dilemmas to test whether children possessed an underlying developmental framework for reasoning about morality.

The most famous dilemma concerned a man named Heinz, whose wife was dying. Kohlberg asked the boys, "Should Heinz steal a life-saving drug or let his wife die for lack of the drug? Why or why not?" As Kohlberg examined the boys' reasons, he discovered distinct age-related differences in the complexity of the moral reasoning they used to arrive at and justify their answers. His 1958 dissertation proposed six stages of moral development – in contrast to Piaget's two – and took a bold stand for the validity of universal justice-oriented moral principles.

Kohlberg's six stages of moral development were organized into three levels – *preconventional, conventional, postconventional* – with two stages each; each stage reflects a moral philosophy or moral worldview that is independent of the specific contents and questions of moral decision making. In short, Kohlberg posited that the six stages were universal and not culturally specific.

Kohlberg called Stages 1 and 2 the *preconventional stages* because children, ages 4–10 years, pass through them before they become aware of socially customary or conventional forms of moral reasoning. In Stage 1, which Kohlberg, like Piaget, called *heteronymous morality*, a younger child unquestioningly obeys authority figures. Children at Stage 1 avoid breaking rules set by external authorities because they are afraid of punishment or external physical consequences. In Stage 2, termed *individualism, instrumental purpose, and exchange*, school-aged children follow rules only when it is in their immediate interest to do so. What is moral is a reciprocal type of concrete exchange ("You scratch my back, I'll scratch yours.").

Stages 3 and 4 are the *conventional stages*. They are the stages in which the majority of people spend most of their lives – conforming, in several ways, to societal or group expectations. People usually enter Stage 3, *mutual interpersonal expectations and conformity*, during pre-adolescence and adolescence. People at Stage 3 equate what is morally right with what is perceived to be "good" and "nice" by others; they conform to the rules and expectations of others so that others will like or approve of them. Kohlberg referred to Stage 4 as *social system and conscience maintenance* because at Stage 4 people believe that the "moral right" stems from their allegiance to a particular social system. Thus they equate morality with what a legal system says is right or wrong, or with the moral rules of a social institution (see Chapter Kohlberg's Theory of Moral Development).

Kohlberg termed Stages 5 and 6 *postconventional* because moral reasoning at these stages goes beyond the moral reasoning used by most social groups or institutions. Stage 5 is characterized by a focus on *prior rights, human rights, and the social contract*. Moral reasoning at Stage 5 is motivated by the kind of thinking John Locke used to describe his social contract theory of government [9]. Locke held that people have certain basic rights, such as rights to life and to property ownership, which exist *prior* to society. Like Locke, people reasoning at Stage 5 believe the purpose of society is to protect individuals' rights and to promote communal welfare. The moral reasoning that characterizes Stage 6 employs *universal ethical principles* to resolve moral dilemmas. Stage 6 thinkers function from a universal ethical principle that views all human beings as free and autonomous. People are ends in themselves and not simply the means to an end. Persons at Stage 6 take the perspective of the oppressed, to ensure that they receive fair, just, and principled treatment (see Chapter Postconventional Morality).

On the basis of his dissertation, Kohlberg received his Ph.D. from the University of Chicago in 1958. The theories and findings on which he elaborated in his dissertation formed the foundation of his distinguished career, which was marked by pioneering ideas and landmark publications. Kohlberg died on January 17, 1987, in Boston, MA. His cremated remains were subsequently scattered into the ocean at Wellfleet, a harbor community on Cape Cod, MA.

Accomplishments

Lawrence Kohlberg's stage model of moral development is his greatest contribution to developmental psychology. Furthermore, his pedagogical models for moral education and the practice of democratic-community schools created a lasting framework for the formation of justice-oriented future citizens [8, 11]. Kohlberg's developmental conception of the aims and nature of moral education challenged the then-current indoctrination approaches to character education in the classroom from kindergarten through grade 12. His three-pronged approach to moral education – moral dilemma discussion, moral exemplars, and Just Community schools – taught that effective pedagogy must attend to both the moral judgment development of the individual and the moral atmosphere and democratic development of the community.

Kohlberg's dissertation [3], early professional articles [4], and popular publications [5] on his six-stage theory eventually initiated a new field of study, the psychology of moral development and education. He went to Yale University as an assistant professor in 1958 and returned to the faculty at the University of Chicago in 1962. During this time, he advocated for his developmental stage model, for moral development as a discrete field of psychological inquiry, and for the validity of universal moral principles.

He joined the faculty of Harvard University as a full professor in the Graduate School of Education in 1968. Subsequently, in 1974, he founded the Center for Moral Education and Development, which became a hub of research, training, and educational activities in the new field. In 1981, he published the first volume of his collected essays on moral development, *The Philosophy of Moral Development* [6]. The empirical findings from his 20-year longitudinal study were published in 1983 as a *Society for Research on Child Development Monograph*. The next year, the second volume of his collected essays, *The Psychology of Moral Development*, was published [7]. Also in 1984, with Anne Colby and several other colleagues, he published the long-awaited two-volume moral stage scoring manual, *The Measurement of Moral Judgment*. With Clark Power and Ann Higgins, he completed the work for their volume on moral education, which was published in 1989 as *Lawrence Kohlberg's Approach to Moral Education* [11].

Contribution to Understanding Childhood Development

Lawrence Kohlberg saw children and adolescents as moral philosophers, capable of forming their own moral judgments. His six stages of moral development, which encompassed childhood through adulthood, followed the characteristics of the Piagetian structural stage model [10]. He based these stages of sociomoral reasoning on a theory of evolving mental structures or cognitive schemata within the developing brain. Each stage represents a qualitatively different way people resolve moral dilemmas. The six stages form an invariant sequence: people do not skip stages or reverse their order. Similarly, Kohlberg theorized that the six stages were hierarchically integrated – higher stages are better in the sense that a person reasoning at a higher stage can understand the moral reasoning used by those at lower stages, but the converse would not be true. Kohlberg also hypothesized that these six stages were universal: that they apply to all human beings at all times, even though many persons do not progress through all of the stages.

Kohlberg began an intense reflection on moral education in the late 1960s, when he became convinced that achieving a just society would require proactive intervention to enable children to become more likely to reach postconventional moral development. Kohlberg developed methods of moral education that would promote moral development and mature character through exposure to information about moral exemplars, classroom moral dilemma discussion, and Just Community programs in which democratic education was a normative feature. Like pragmatist educator John Dewey, Kohlberg taught that school communities were uniquely capable of providing a democratic context in which to facilitate moral development [1]. His three approaches to moral education, which integrated socialization and developmental methods, strengthened a community's moral climate as well as the moral reasoning of the individuals within the community. He advocated focusing on the lives of moral exemplars who would embody, through their words and deeds, the ideal of universal ethical principles. He and his colleagues implemented a method of integrating moral dilemma discussions (like those he piloted during his dissertation research) into humanities and social studies programs. Children are best equipped to help one another achieve moral maturity since they often reason within one stage of one another, and their interaction provides optimal dilemmas for discussion and resolution, articulated in a language they understand. A central feature of the Just Community approach was the weekly community meeting, which would help students and participants acquire the democratic habits of thinking and acting according to a standard of fairness for all.

Kohlberg's attention to moral, educational, and political philosophies began with taking seriously the moral dilemmas in his own history and background. His innovative responses to these moral dilemmas led to the

development of what is now considered the field of moral psychology and education, and changed the shape of conversation about the development of moral maturity in psychology and philosophy. He created lasting frameworks for approaching the study of the development of moral cognition and education and inspired programs to prepare citizens for living in a participatory democracy.

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Kohlberg's Theory of Moral Development

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Definition

Lawrence Kohlberg's theory of moral development conceptualizes the sequential cognitive and developmental process of moral reasoning in children.

Description

Kohlberg's theory was developed by presenting ethical and moral dilemmas to children in a short story format, followed by questions to elicit their feelings and decisions about the character's actions. After studying the responses, he concluded there are three levels of moral development, each with two stages, as described below.

Level I: Preconventional Morality

In this initial level, children make decisions based on external consequences to their behavior, without consideration of the feelings of others. This level is typical of elementary school aged children.

Stage 1: Punishment and Obedience Orientation

Decisions are rule based to avoid punishment. The physical consequences of an action determine if it is right or wrong.

Stage 2: Individualism, Instrumental Purpose, and Exchange

Decisions are based on meeting one's own needs, with the beginning understanding that you should do things that lead to a reward and avoid behaviors leading to punishment. Others are helped only if it benefits the child himself.

Level II: Conventional Morality

At this level, children shift to decision making based on rules or norms of the group to which they belong. Conformity to the expectations of others and general social norms is most important. External rules begin to be internalized. This level begins to emerge in adolescence.

Stage 3: Interpersonal Conformity

Sometimes referred to as the "Good-Boy/Nice Girl" phase, children begin to think that being "good" is what pleases others and living up to expectations is important. There is the beginning thinking about intention as well as outward behavior.

Stage 4: Social System and Conscience

Also called the "Law and Order" orientation, rules are not questioned and the shift is toward respecting authority and maintaining the social order, and away from pleasing others.

Level III: Postconventional Morality

At this level, moral values have been individualized and internalized, independent of social or norm group membership. Kohlberg considered this level (especially at Stage 6) to be rare, with most adults' moral reasoning typical of Stages 3 and 4.

Stage 5: Social Contract

Rules are perceived as necessary and promoting fairness, but individual rights are emphasized, leading to perceptions that rules and laws can be ignored or changed in some circumstances.

Stage 6: Universal Ethical Principles

Behavior is based on more abstract and personalized principles that are considered "acts of conscience" for the individual, but that are related to universal concepts such as freedom, justice and respect.

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Kohlberg's Third Level

►Postconventional Morality

Kolb, Bryan

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Introduction

Dr. Kolb is considered one of the world's most influential neuroscientists and distinguished researchers of behavioral neuroscience. He is regarded as a "founding father of behavioral neuroscience" in which the focus is on the interaction of neuronal changes and behavior [1].

Educational Information

Dr. Kolb was awarded a B.Sc. and M.Sc. in Psychology from the University of Calgary. In 1973, he received his doctorate of philosophy from Pennsylvania State University. Dr. Kolb completed postdoctoral fellowships at the University of Western Ontario and at the Montreal Neurological Institute.

Accomplishments

Dr. Kolb developed the first course in human neuropsychology in Canada. He was a post-doctoral fellow at the Montreal Neurological Institute at the time. Dr. Kolb's later research on the plasticity of the brain, or how new brain cells grow, has informed many new treatments for individuals with Alzheimer's disease, brain injury and drug abuse problems. Dr. Kolb has received numerous international honors and is a long-standing member of the Group of One Hundred [1]. This International Neuropsychology Symposium assembles together the most eminent behavioral neuroscientists in the world.

Contributions

Dr. Kolb's outstanding contribution was the discovery that we can grow new brain cells. He and his team demonstrated how the growth of new brain cells can restore cerebral and, therefore, behavioral functions [2]. An important focus of Dr. Kolb's research was the identification of factors that effect the cerebral cortex in an embryo and during early childhood development. Strategies for improving the recovery from early brain injury, as well as precautions for pregnant mothers were consequently identified by Dr. Kolb and his research team.

Current Involvement

Currently, Dr. Bryan Kolb is a Professor in the Department of Neuroscience at the University of Lethbridge, Alberta, Canada. He also holds adjunct appointments at the University of Calgary and the University of British Columbia. In addition, Dr. Kolb is an Associate Director of the Canadian Institute for Advanced Research, Experience-based Brain and Biological Development program. Dr. Kolb is a Killam Fellow, a Fellow of the Canadian Psychological Association, the American Psychological Association, the American Psychological Society, and the Royal Society of Canada. Dr. Kolb has authored several books, including *An Introduction to Brain and Behaviour* and *Fundamentals of Human Neuropsychology* [3]. The latter is employed internationally as a standard text [4].

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L

Labor and Delivery

►Birth Process

Lactating

►Breastfeeding

Ladd-Franklin, Christine

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Life Dates

(1847–1930)

Introduction

Christine Ladd-Franklin, American psychologist and logician, was best known in psychology for her theory of color vision and as a strong proponent for women's equality within psychological science and academia.

Educational Information

Christine Ladd-Franklin, like many of her psychological female cohort, found the road to higher education to be a rocky one. Ladd-Franklin began her collegiate career at Vassar College. However, unlike many at the time, she did not come with extensive financial resources. She entered Vassar in the fall of 1866 but was only able to complete one year before financial problems forced her to withdraw. After a year of teaching, and with some assistance from an aunt, Ladd-Franklin returned to Vassar in 1868 and completed her A.B. in 1869. It would be some years, though not unproductive ones, before Christine Ladd-Franklin would continue her formal education. Between 1869 and 1876 she unofficially continued her education by attending courses as a non-admitted student at Washington College, Jefferson College, and Harvard [10]. Her studies at Washington and Jefferson focused primarily on mathematics. Her Harvard studies are still controversial; although, it is agreed that she spent at least one summer there pursuing botany studies. It was also during this period that she was teaching science and mathematics in girls' high schools [8, 9].

In 1876, aware of the potential detriment of her sex, Ladd-Franklin wrote to the world-renowned mathematician James J. Sylvester at the newly formed Johns Hopkins University to inquire if her sex might in fact be a detriment to her admission [7]. Receiving Sylvester's support, and that of the newly developed fellowship program, she submitted her application for graduate studies to the university. The application was submitted under the name C. Ladd (her maiden name) with impeccable credentials. She was officially accepted. That was until the trustees' of the university discovered that C stood for Christine at which point Sylvester had to intervene on her behalf. Ladd-Franklin was finally admitted as a full time student, with special provisions, and three years of support from the fellowship but would not be formally recognized as equal to her peers for many years. While attending Hopkins, Christine Ladd-Franklin studied mathematics under Sylvester and symbolic logic under physicist Charles S. Pierce. She was the first American woman to formally receive graduate instruction in both [4, 8]. Like Mary Whiton Calkins at Harvard and Lillien Jane Martin, fellow Vassar alum, at Göttingen, Christine Ladd-Franklin completed all of the requirements for the Ph.D. at Johns Hopkins in 1882. She was however denied the degree, based solely on her sex, until 1926. Ladd-Franklin was seventy eight years old when she finally received her doctorate but she was still the one of the three pioneers mentioned above to do so. To date neither Harvard nor Göttingen has officially recognized Calkins or Martins degrees. Lillien Martin was awarded an honorary doctorate from the University of Bonn in 1910 allowing her to be officially referred to as doctor in her life-time. Mary Whiton Calkins, however, was offered only an alternative degree from Radcliffe in 1903 (Harvard's women's college during that period), which she refused on the grounds that she had attended Harvard and not Radcliffe.

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

Christine Ladd-Franklin and Lillien Martin also shared one other similarity in their pursuit of higher education, G. E. Müller. Ladd-Franklin was the first female student and first American student of Georg Elias Müller at Göttingen in 1891 [3]. However, she spent only one year at the university. Lillien Martin followed in 1894 and would become the first woman and only American student to pursue a full five years of study under Müller at Göttingen. In later years, Ladd-Franklin would further her studies in color vision at the University of Berlin under Herman Von Helmholtz while Martin would go on to study mental imagery under Oswald Külpe at the University of Bonn.

Accomplishments

Christine Ladd to her detriment married fellow student and mathematician Fabian Franklin upon completion of her studies. Her marriage is important in that it not only exemplifies her feminist leanings, with the use of a hyphenated name, but also because the choice to marry would forever hinder her career. Christine Ladd-Franklin taught logic, mathematics, and psychological science throughout her career. In the early 1900s she primarily taught courses in logic and mathematics at Johns Hopkins. The bulk of her career, from 1915 until her death, would however be focused on psychology and philosophy at Columbia University. Due to her marital status, Columbia never provided her with a full professorship contract. A professional slight that was common to married women of the early twentieth century [7–10].

Christine Ladd-Franklin began publishing early. Her first recorded works on mathematics were published during her undergraduate years at Vassar. Between 1873 and 1871 she published mathematical formulas in the London *Educational Times*, *The Analyst: A journal of Pure and Applied Mathematics*, and the *American Journal of Mathematics*. It has been noted by historians that Ladd-Franklin's 1877 publication in *The Analyst* is the first by a woman to appear in a mathematics journal [4, 8].

She is also considered a pioneer in the study of symbolic logic with her dissertation, *The Algebra of Logic*, appearing in the now seminal 1883 work edited by Pierce titled *Studies in Logic by Members of the Johns Hopkins University*. Philosophy historians have noted that Christine Ladd-Franklin reduced syllogism to a single formula and developed the primary principle for a recognized validation of forms of syllogisms [7]. Ladd-Franklins earliest foray into psychology through symbolic logic be seen in the 1889 edition of the *American Journal of Psychology*. Her influence on study of logic continues and has been widely recorded (See [12]).

Contributions to Psychology

It was in Germany that Ladd-Franklins earlier studies in botany, biology, and logic began to come together under a psychological umbrella of color vision. Her exposure to the two prominent color theories of the time: Helmholtz (later Young-Helmholtz) and Ewald Hering would alter the course of her already promising career. Christine Ladd-Franklin developed her own cumulative theory of color vision proposing that rather than the now classic, three or four, static color perception framework (e.g., Helmholtz or Hering) that a process existed whereby the ability to perceive color combinations evolved over time. The earliest version of her theory on color sensation was presented at the Second International Congress of Psychology in 1892 and published in the German Journal *Zeitschrift fur Psychologie* that same year. The American introduction to Ladd-Franklin's theory, in a formal publication, appeared in *Science* in 1893.

The bulk of the theory can be reviewed in Christine Ladd-Franklin's book *Colour and Colour Theories*, which included many of her publishing's on the topics [6]. This original text offers several colored images providing accessible visual summations of the theory. Ladd-Franklin's theory included the only evolutionary postulate for the recognition of color sense perception with increased differentiation of photochemical receptors during that time [13]. Many considered her theory to be superior to both Helmholtz and Hering (See [2, 11]). Yet, the former continue to be cited in psychologies introductory texts while Ladd-Franklins is omitted.

Ladd-Franklin published approximately 400 articles and books in mathematics, logic, and psychology in her life-time but is often remembered for the strength of her feminist ideologies rather than the insightfulness of her research. She was not known to let a sexist slight pass her by. She was one of the first two women, the other being Calkins, to be elected to the American Psychological Association, in 1893, but her tendency to buck the patriarchy within the discipline omitted her inclusion on prominent committees. She also often published on issues of equality for women within the academy. In 1903, Christine Ladd-Franklin had been listed in Catell's Men of Science volume and was one of only three women psychologists starred that year, indicating eminence in the field. The most prominent of her publishing's on women appeared the following year with her 1904 paper on *Endowed Professorships for Women* [5].

Ladd-Franklin's battle of wills with Edward Titchner regarding the Society of Experimentalists is an often-cited example of her refusal to recognize female psychological scientists as anything other than equals. Titchner's refusal

to admit women to the Experimentalists meeting is well recorded – as is Ladd-Franklin's constant letters to him debating the decision. Margaret Floy Washburn and June Etta Downey were the first women officially admitted to the society, after Titchners death, but Christine Ladd-Franklin was the first to attend the meetings. Ludy Benjamin [1] has noted that at the 1914 meeting in New York, where Ladd-Franklin resided, she attended one session of the meeting. Titchner noted in a letter to Robert Yerkes that Ladd-Franklin had threatened some manner of a scene at the event and possible public protests in print. She had warned Titchner prior to the meeting that action was forthcoming and kept her word.

Christine Ladd-Franklin's contributions to the history of women in psychology finally began to be recognized in the 1980s. The height of which culminated in the Association of Women in Psychology's (AWP) Christine Ladd Franklin Award in 1992. The award is given to the member with the most significant contribution to the AWP. The organization provides this description for the award "in honor of Christine Ladd-Franklin... an early scientist whose career provided a painful example of the way institutional sexism operated to exclude women from careers in psychology and the sciences." It could also be added that she also showed what the women in nineteenth and early twentieth century managed to accomplish in spite of it.

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Language

►Verbal Skills

Language Acquisition

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Synonyms

First language acquisition; Language learning; Native language acquisition

Definition

Language acquisition refers to the processes by which humans learn their native language(s) as children.

Description

For typical children, the foundations for language acquisition are laid before birth when the developing fetus is exposed to adult speech sounds. After birth, infants show signs of attending to speech and show a preference for their caretakers' speech sounds [1]. As an infant matures, he or she will begin experimenting with vocalizations and various forms of babbling (Babbling consists of strings of random sounds composed of vowel-consonant or consonant-vowel combinations. Babbling is likely essential for speech development [1].) will begin around the age of 4 months. Between 7 and 12 months, an infant will begin to look at an object when its name is spoken and show other signs of word recognition [1]. Between the ages of 8 and 12 months, the infant begins to imitate the speech and communicative gestures of adults and older children: the emergence of echolalia (Echolalia is defined as the immediate imitation of another speaker's speech [1].) is considered an important part of speech development. The child's use of his or her first adult word will begin around

12 months of age. The use of two-word sentences will begin around 18 months, and by the age of 24 months, a typical child will have a vocabulary of 200–300 words and will be able to form short sentences. Parents and caretakers often respond to their child's developing language with a speech style known as motherese or parentese (Motherese, also known as parentese or baby-talk, is the style of speaking to young children and infants which typically involves slower speech, sentences that are shorter and simplified, and exaggerated pitch changes and stress patterns [1].). The shorter length of utterances typical of motherese may help to improve some types of language skills in young children [1].

After age 2, the child's language acquisition increases rapidly. The vast majority of children will achieve basic competency in their language by age 5 [2]. Around age 6, typical children will begin to use all parts of speech, and sentences will become more complex. Between the ages of 8 and 12, children gain the ability to verbalize problems and ideas, including abstract concepts. The breadth of vocabulary and use of subtle, complex, and creative language will increase during adolescence and continue to develop throughout the lifespan [1].

Theories of Language Acquisition

There are numerous theories of language acquisition. Three major theories of language acquisition are the behavioral theory, sociolinguistic theory, and the psycholinguistic or nativist model.

The behavioral theory of language acquisition, developed by the behavioral psychologist B. F. Skinner, proposes that language is learned when other persons in the child's environment respond to the child's use of language [1]. According to Skinner, reinforcement is defined as an event that follows a behavior and increases the future probability of that behavior. When children make speech sounds, others respond in a positive way to these sounds, which reinforces these behaviors and causes the child to engage in them more often [1]. According to this theory, adults gradually shape (Shaping refers to the training of a behavior through the reinforcement of behaviors that are increasingly close approximations of the desired behavior. After a closer approximation is acquired, the other approximations are no longer reinforced. This process continues until the organism acquires the desired behavior [1].) children's language use by initially reinforcing the production of any sounds, then reinforcing only specific sounds that can be used to form words in the child's native language, and later only reinforcing adult words used correctly. As the child matures, other people gradually stop reinforcing language use acceptable in young children and begin to reinforce only the acceptable adult uses of language. This process continues until the person has achieved the language competency accepted in his or her environment. This theory has been criticized because studies of parent–child interaction have not found evidence that this type of reinforcement of language use actually occurs consistently [2]. However, most scientists recognize that environmental input is essential for language acquisition and can influence and improve language use [1].

The psycholinguistic or nativist model, first developed by Noam Chomsky, proposes that all human beings have an innate ability to learn language. Chomksy referred to the mechanism that facilitates language acquisition as the language acquisition device (LAD). According to this theory, all typical humans are hard-wired to use basic, universal rules of language which exist in all languages [1]. However, transformational rules, which govern grammar, word order, and other differences that are specific to each language, must be learned by the child as he or she matures. According to this theory, children gradually learn the transformational rules of their own language by hearing the speech of other adults and testing out the patterns of speech when they create their own utterances. This explains why children make mistakes by overusing common rules of their language: for example, children may say "mans" instead of the correct term "men" because they have learned to add a final "s" to pluralize a word. However, this theory has been criticized because it fails to recognize the effects that social interactions and the environment can have on language acquisition and use [1].

The sociolinguistic theory proposes that language is learned through social interactions which cause the child to associate meanings with words used in social contexts. According to this theory, language acquisition begins when a child begins to learn language as caregivers imbue a child's actions with meaning when they respond to early communication attempts [1]. After social communication is established, caregivers model speech and, when the child imitates their speech, provide feedback that confirms, corrects, or expands the meaning and function that various utterances have when used in a social context. Thus, the communication of intentions and desires first begins in nonverbal forms; after this is established, the child learns to use verbal language to communicate. This theory accepts the view that an innate LAD may exist, but proposes that a social support system is necessary for language acquisition to occur successfully [1].

Relevance to Childhood Development

Clearly, language use is one of the most important skills learned in childhood. Knowledge of theories and

developmental milestones related to language acquisition can be helpful to parents, caretakers, and educators who wish to design educational and play activities that are suited to specific age groups. Appropriate use of milestone information also can be helpful for identifying problems with speech, language, or hearing. However, parents should also consider the fact that developmental milestone charts provide only approximate information and that individual variation is expected [1]. Understanding the different theories of language acquisition also can aid parents and guardians in selecting interventions for children with language delays or disorders and evaluating the different interventions offered by professionals.

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Language Development

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Definition

Language development is a higher level cognitive skill involving audition and oral abilities in humans to communicate verbally individuals' wants and needs.

Description

Language is a complex system involving several components. The components of language include phonology, semantics, syntax, and pragmatics. Language development occurs in a fairly predictable fashion. Most typically developing children acquire the skills in each of the four areas by the end of their ninth year of life. While some children may develop more quickly than this, others may develop a bit slower. The important issue is that language develops in a typical sequence across all four areas.

The area of phonology includes the sounds of speech. Most typically developing children have acquired all speech sounds of their first language by the end of their ninth year. The typical order of phonological development begins with the sounds produced at the front of the month and progresses to complex blends of sounds.

The second component of language development is semantics, or the meaning of words. It is remarkable that infants begin with no words at birth and typically produce upwards of 250 words by the end of the second year of life. By the time children are 6 years old, they typically have a working vocabulary of 10,000 words! Children who are growing in language-rich environments may have even larger vocabularies.

Syntax, or sentence structure, is the third component of language development. As children develop language they begin to use more complex sentence structures. They progress from using one-word utterances (~12–18 months), to two-word utterances (~18–24 months), to three-word utterances (~24–30 months), and finally they are capable of using complex sentences that join more than one thought or event. Most typically developing children have mastered the rules of adult syntax by age 5.

The final component of language development is pragmatics. Pragmatics is an understanding of how we use language to communicate with others. Pragmatics includes the social conventions of a culture, such as, politeness, turn-taking routines, non-verbal cues that indicate the listener understands, and cultural variations of these.

Relevance to Childhood Development

Language development does not begin when children utter their first words around the end of the first year of life. Indeed, language development begins even before birth! There is evidence to indicate that newborns prefer human voice to other sounds and can even recognize their own mother's voice over voices of other humans. The amount of talk directed at the young child is strongly linked with children's vocabulary growth and in turn their future reading and writing skills. Children who are reared in language-rich environments do significantly better in reading and writing than children reared in impoverished environments. The critical element of language development to child development is that language development is at the root of most cognitive, social and emotional tasks associated with later success in school.

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Language Disorders

►Central Auditory Processing Disorder
►Communication Disorders

Language Impairments in Children

►Central Auditory Processing Disorder

Language Learning

►Language Acquisition

Language Variety

►Dialect

Language-Based Reasoning

►Verbal Intelligence

Laplace-Gaussian Curve

►Normal Curve

Latent Learning

►Learning

Latent Variables

►Variables, in Experimental Developmental Research

Laterality

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Synonyms

Cerebral lateralization; Handedness; Lateral dominance; Split brain; Unilateral hand preference

Definition

Laterality, which is often referred to as unilateral hand preference or handedness, is the preference for one side of the body over the other. Examples include right-handedness and left-footedness. Laterality is related to cerebral *lateralization*. Laterality is crucial to understanding language functions because of their association with the dominant hemisphere of the brain.

In most cases, handedness is genetically determined; however, early trauma or prenatal events are known to affect the adult and preference. Left hand preference that is due to an early hemisphere lesion is referred to as *pathological left-handedness* [1].

Description

The reason for hand preference is not completely understood; however, there are small but significant anatomic differences between the dominant and non-dominant hemispheres. For example, the *planum temporale* tends to be larger in the dominant hemisphere. Also the *sylvian fissure* and *occipital horn* tends to be longer in the dominant cerebral hemisphere. Even though there is no clear explanation as to why left-handedness occurs, traditional hypothesis suggest that the left-hand preference is a result of the left-hemispheric disease in early life, which also explains why there is more left-handed individuals among the learning-disabled or cognitively impaired populations than among right-handed individuals [1, 3].

Laterality reflects the functional supremacy of one of the cerebral hemispheres. The majority of humans displays the left cerebellar dominance. Generally, each cerebral hemisphere controls the contralateral side of the body (i.e., left cerebral hemisphere is controls the right side of the body) including muscular control, sensory input, and

other lateralized functions that are associated with a particular hemisphere. This pattern is not clearly established in all individuals. In fact, many individuals are mixed-dominant and not completely right-handed or left-handed, but they tend to favor one hand for complex tasks [1].

Studies estimate that about 90–95% of all adults display general right-handed preference. In early childhood, only 70% of children present right-handedness; yet, in middle and late adulthood, the percentage of right-handed individuals increases to 99%. This change is explained partially by the practice of forcible repression of left-handedness and the accommodation of left-handers to tools and norms of the right-handed environment. About 95–99% of right-handers have left-hemispheric language representation.

The majority of non-right-handed (*nondexteral*) individuals present left cerebral language dominance; however, they are more likely to have atypical language representation (right or bilateral) with the familial history of left-handedness. The incidence of the right cerebral dominance is harder to estimate due to bilateral hemispheric distribution in these individuals. Yet, the incidence of right-hemispheric language dominance in left-handedness increases linearly with the degree of left-handedness, form 4% in strong right-handers to 15% in ambidextrous individuals and 27% in strong left-handers. General estimations indicate that in nondexterals, 78% is left-hemispheric dominant, 15% have bilateral language distribution, and about 8% present right-hemispheric dominance [1].

In right-handed individuals, aphasia is usually related to left-cerebral lesion. In these individuals, aphasia due to pure right-hemispheric lesion happens only in 1% of cases. Cerebral dominance in ambidextrous and left-handed individuals is rarely so uniform. In fact, in 60% of left-handed individuals, aphasia is due to lesions in the left hemisphere, and a majority of right-hemispheric aphasias is reported in left-handers. Moreover, language disorders in left-handed patients with right hemispheric lesions are usually less severe and enduring than in right-handed individuals. Thus, it is often proposed that non-right-handed individuals have bilateral representation of language functions [4].

There are several ways that help to determine which hemisphere of the brain is the dominant one: (1) behavioral outcomes of the brain lesion (the loss or impairment of language functions is usually associated with lesions in the dominant hemisphere); (2) the preference for greater facility in the use of the right or left hand; (3) the preference for greater facility in the use of the right or left foot; (4) the arrest of speech in association with a focal seizure or after electrical stimulation of the anterior language area during a surgical procedure; (5) injection of sodium amytal into the left internal carotid artery, which produces a one or 2-min-long period of mutism that is followed by misnaming, and paraphasic speech if the left hemisphere is the dominant one; (5) dichotic listening test in which different words are presented simultaneously to two ears, yields ear-hemisphere advantage for the dominant cerebral hemisphere; (6) observing the increase in cerebral blood flow during language processing tasks; (7) and lateralization of speech and language functions following the commissurotomic procedure [1].

Laterality and Cognitive Development

Left-handers tend to perform better than right-handers on visuo-spatial tasks. These group differences are likely related to the fact that left-handers have visuospatial functions mediated in a more diffuse manner by both hemispheres and not localized in the right hemisphere, while right-handers have the visuospatial functions more localized in the right hemisphere. Laterality also is related to cognitive abilities and gender. Left-handed males tend to perform similarly to right-handed females in their superiority on tests of verbal skills and sequential processing, and left-handed females and right-handed males appear to have advantageous visuo-spatial skills and nonverbal auditory processing abilities [4].

Higher proportion of nondexterals than right-handers present extreme cognitive functions. At the lower end of the distribution are individuals whose left-handedness was caused to early brain injury. At the other end are individuals with superior intellectual abilities. These individuals tend to become skilled mathematicians, professional athletes, architects, lawyers, and chess players. Additionally, more left-handers enjoy artistic (manual and graphic) and musical talents [1, 4].

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Laughter

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Synonyms

Cackle; Chuckle; Chortle; Giggle; Guffaw; Snicker

Definition

An explosive sound that is the sign of amusement. Origin: From the Old English *hliehhan*, is of onomatopoeic (sound-imitating) origin.

Description

Laughter is the communication of emotion in a social situation and part of the universal human vocabulary. Laughter may express various emotions such as joy, amusement, nervousness, fear, shame, and even aggression. Laughter is one of the few vocalizations that is shared by humans and non-human primates. Tickling is one of the most common and reliable triggers to human and primate laughter. Researchers have found that laughter is not consciously controlled. It is defined by a specific repeated vowel sound such as "ha ha ha" or "he he he." Different laugh types differ with respect to emotional dimensions. An associated term "schadenfreude" is defined as laughing at another's misfortune.

Relevance to Childhood Development

As early as the first few weeks of life, infants begin experiencing the world through auditory and visual channels. During the first months of development, babies may smile and produce "laughter-like" vocalizations at the sight of a familiar face. The close interaction between mother or caregiver and child fosters healthy attachment. Laughter vocalizations are a naturally occurring part of child development. "Cooing," cuddling, and tickling will elicit the laughter response in very young infants.

As children reach toddler age, they continue to develop socialization by using laughter in communication. Children will often play and laugh to express amusement and silliness with family members and friends. Children usually find humor in silly sounds of cartoons and physical humor. During the schooling years, children may quickly learn the social "norms" among their peers in regards to laughter. Laughter can be used either to include or exclude children from a social group.

Humor is often used in a therapeutic way to elicit laughter. Laughter is associated with the reduction of stress and provides a brief escape from stressful events. The phrase "Laughter is the best medicine" is based on current research of the many health benefits. Laughing can reduce vasoconstriction (the narrowing of blood vessels) and may decrease levels of the "stress" chemicals Cortisol and epinephrine. Doctors, such as Patch Adams, M.D., have used humor therapy and clowning in their medical practice for treatment of terminally ill patients to provide coping techniques.

In regard to parenting, functions of laughter can vary according to an individual's perception of their child (ren) and specific kinds of interaction. Skilled therapists can observe interactions between parent and child to identify how laughter is used in relationships. Laughter may be used as a means to negotiate tensions or while discussing delicate issues (nervous laughter). A parent may also use laughter to calm concerns they have about his/her child(ren).

Conclusion

Laughter is a commonly overlooked, yet universal function of human social communication. The meanings of different types of laughter are relative to human development. In humans as young as toddlers, laughter can be used to include or exclude peers from a specific social group. Health benefits of laughter include stress reduction and the reduction of vasoconstriction and stress chemicals.

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Law of Effect

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Synonyms

Principle of reinforcement

Definition

The Law of Effect is E. L. Thorndike's description of the principle of connectionism: an individual is more likely to repeat behaviors that are accompanied or closely followed by satisfaction and less likely to repeat behaviors that are accompanied or closely followed by discomfort in a particular situation, when that situation recurs.

Description

Thorndike's Law of Effect

At the end of the nineteenth century, Edward L. Thorndike pioneered a means of measuring learning. He constructed several chambers, each equipped with an escape hatch that could be opened by a particular mechanism such as depressing a lever or pulling a string. He would place a cat (dog, or chick) in the same "puzzle box" several times and recorded escape latency – the amount of time it took the cat to execute the required mechanism and exit the chamber. Upon succeeding, cats were rewarded with access to food for a brief period. Thorndike deemed a decrease in escape latency over successive trials evidence of "animal intelligence," or learning.

The first time a cat experienced a puzzle box it would explore the box, guided by impulse or instinct, and usually took a long time to escape. Once they had escaped successfully from a puzzle box several times, most cats executed the required escape response quickly. Thorndike [5] attributed the decrease in escape latency to a strengthening of the association between stimulus (puzzle box) and response (whatever action was required to escape). Thorndike [6] described the improvement of performance upon repeated trials as the Law of Effect:

> Of several responses made to the same situation, those which are accompanied or closely followed by satisfaction to the animal will, other things being equal, be more firmly connected with the situation, so that, when it recurs, they will be more likely to recur; those which are accompanied or closely followed by discomfort to the animal will, other things being equal, have their connections with that situation weakened, so that, when it recurs, they will be less likely to occur. The greater the satisfaction or discomfort, the greater the strengthening or weakening of the bond (p. 244)

According to Thorndike, the effect of reinforcement is a strengthening of the association between stimulus and response. The corollary effect of punishment is a weakening of the association between stimulus and response. Thorndike's Law of Effect does not provide any insight into how the association comes about in the first place. As such, the law of effect can be considered a definition of positive reinforcement (and positive punishment), a key concept for theories of learning in respondent and operant behavior: a reinforcer is anything that strengthens a preceding behavior.

Theories of Matching: The Quantitative Law of Effect

Herrnstein [4] conducted an ▶operant conditioning experiment in which pigeons pecked at two concurrently-presented options that were reinforced at different rates. For several different reinforcement ratios, the percent of pecks to a particular alternative equaled the percent of reinforcers obtained on that alternative: the relationship between rates of responding and rates of reinforcement was proportional. This observation is a restatement of the law of effect as a description of choice between different alternatives that made it possible for Herrnstein to express the relationship as a mathematical equation:

$$\frac{B_1}{B_1 + B_2} = \frac{kR_1}{k(R_1 + R_2)} \quad (1)$$

In Eq. 1, *B*s denote rates of responses, *R*s denote rates of reinforcement, k is a constant multiplier that drops out and subscripts 1 and 2 refer to different types of responses (alternatively, a target behavior and all other possible behaviors).

The relationship between rates of responses and reinforcement is known as the "matching law" and often appears in its most general form [2]:

$$\log\left(\frac{B_1}{B_2}\right) = s * \log\left(\frac{R_1}{R_2}\right) + \log b \quad (2)$$

In Eq. 2, Variables *B*, *R* and their subscripts are as in Eq. 1. The parameter s refers to the sensitivity of responding to reinforcer ratio, and the parameter $\log b$ to bias, a constant preference for one alternative that is independent of reinforcer ratio. The original matching law described by Herrnstein is a special case of the generalized matching law. The generalized matching law provides a good description of behavior in a variety of experimental choice procedures [3].

Relevance to Childhood Development

The law of effect and the generalized matching law are best understood in experimental conditions where both response and reinforcer are concrete, discrete and easily measurable. However, the principle applies to all circumstances in which learning occurs, in humans of all ages as well as in cats and pigeons.

The matching law has been used as a means of describing behavior in applied settings notably including classroom environments. It enables psychologists and educators to quantify and assess on-task or appropriate behavior relative to off-task or inappropriate classroom behavior. Results of empirical studies [1] have produced strategies for reinforcing, both individually and classroom-wide, appropriate behaviors such as homework completion that "may allow educators to increase the probability of students choosing to engage in assigned tasks."

A practiced understanding of the law of effect can be particularly useful when teaching preverbal or nonverbal children. Consistent positive reinforcement of a behavior encourages that behavior, whether it is desirable or no. Many parents will identify with those in this case study of a toddler [7]: While the toddler had been sick for an extended period as an infant, one of his parents or a caregiver would monitor him at bedtime until he fell asleep. If the toddler cried or fussed after he was left alone in his bedroom, an adult would return to tend to him. At bedtime, the toddler's crying response was strengthened by the satisfaction he received from his parents' attention. It is no wonder his crying continued after his health returned! When his parents stopped reinforcing the toddler's unnecessary crying, his tantrums ceased with no apparent ill effects.

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Law of Independent Assortment

►Mendelian Genetics

Law of Segregation

►Mendelian Genetics

LBW

►Low Birth Weight

Lead Poisoning

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Synonyms

Plumbism; Saturnism

Definition

Lead poisoning is a medical condition in which the body contains toxic levels of lead.

Description

Lead has been put to many uses throughout history. It was mixed into cosmetics and medicines, as well as added to pottery enamel and glass used to make food containers. In more recent times, lead was used for soldering the edges of tin sheets together in order to make cans for preserving food. Lead has been used in pipes for household plumbing, as well as in household paints. It was also added to gasoline. As a result, children and adults were often exposed to toxic levels of lead. In modern times, the primary source of exposure for children is lead in paint. Contaminated dust and soil is the second most common source. Young children are at higher risk of exposure, as they engage in hand-to-mouth activities more frequently than older children and adults [3, 8].

Lead levels are typically measured in micrograms per deciliter (μg/dL) in the blood. The Centers for Disease Control and Prevention [6] recommends individual intervention for children with a blood level of 15 μg/dL or higher and community interventions in areas where many children have blood levels of 10 μg/dL or higher. The average blood lead level in the United States is 2 μg/dL.

Symptoms of early or mild lead poisoning (about 25–60 μg/dL) often include digestive problems, such as nausea, loss of appetite, or constipation. Fatigue and difficulty sleeping may be noted. Individuals may develop

anemia. More severe levels of lead poisoning (above 80 µg/dL) can include kidney disease, encephalopathy, paralysis (lead palsy), or partial or total blindness. Some individuals may have a blue line along the gum line, faintly at mild levels and more pronounced with severe exposure, which is unique to lead poisoning; however, many individuals do not develop this symptom. If left untreated, severe lead poisoning may result in convulsions, coma, or death [1–3, 5, 7, 8].

The primary method of treating lead poisoning is chelation therapy. The most common chelating agents used are penicillamine, mese-2,3-dimercaptosuccinicacid (DMSA), ethylenediaminetriacetate (EDTA), and 2,3-dimercaptopropanol (BAL). Penicillamine and DMSA are taken orally and are more commonly prescribed for mild or chronic cases and when treating children. EDTA and BAL are administered by injection and are used for acute lead poisoning. When used with children, injections are typically intramuscular. Proper nutrition is very important during chelation therapy, as the agents used can bind to essential minerals, such as zinc and iron [2, 9].

Relevance for Childhood Development

Prenatal exposure to lead has been associated with spontaneous abortions and premature births [10]. Although 80 µg/dL is typically identified as severe exposure, encephalopathy has been found as low as 65 µg/dL. Signs of encephalopathy in children may include restlessness, drowsiness, difficulty concentrating, headache, and vomiting. Seizures may also be noted [4].

Lead poisoning has been found to have a negative impact on the performance on intelligence tests, even at mild levels. Deficits in visual-motor coordination are common. Behavior disorders may develop, with signs of aggressiveness or destructiveness. Children with lead poisoning have been found to be absent from school more frequently, as well as to have higher rates of school failure. Academically, children often perform more poorly on school work, especially verbal activities, such as reading and vocabulary. Auditory processing skills may be weakened. Reaction times tend to be slower for children with lead poisoning [4, 8].

Research has been inconsistent in determining the permanence of deficits for children following treatment for lead poisoning. Some studies have found children can improve with reduction of lead levels, while other studies have found continued deficits. Reduction of environmental exposure is critical to treatment of lead exposure, as reexposure is more likely to cause permanent damage to the central nervous system, even when the second exposure is at a low level [4, 9].

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Learned Helplessness

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Definition

The pattern of attributions and behaviors that leads an individual to see no connection between the behavior and the outcomes resulting in feelings of hopelessness, depression, and passivity [5].

Description

Learned helplessness is the perception of little or no relation between one's behaviors and outcomes. Learned helplessness theory assumes individuals seek explanations for events, particularly negative events such as school failure,

interpersonal problems, poor health, or loss in sports. These explanations and the attributions that underlie them affect expectations for future events. These future expectations then determine behavioral responses, including passivity, anxiety, and depression. Children who develop learned helplessness tend to attribute their failures to a lack of ability. However, when these children succeed they attribute it to external factors, such as luck, rather than ability [5].

The theory of learned helplessness was first proposed in 1967 by Steven Maier and Martin Seligman when they were graduate students at the University of Pennsylvania. The students were involved in a series of experiments concerning negative reinforcement using dogs. In these experiments, a group of dogs received uncontrollable shocks. These dogs were then placed in a situation when they could control the shocks received. The dogs did not display any learning in the new situation- lying passively in the box while receiving shocks that could be controlled, unlike the control group and the dogs that received controllable shocks through the duration of the experiment. Similar results were found in later experiments with rats, monkeys, cats, and humans. From these first experiments, Seligman and others developed their theory of learned helplessness.

Seligman's theory of learned helplessness is composed of three components: contingency, cognition, and behavior. Contingency is the outcome of a person's actions; that is the result experienced due to a person's behavior. Cognition is the person's perception and explanation of the outcome or contingency. Thirdly, behavior is the action a person takes in response the contingency and cognition. Learned helplessness is similar to Weiner's attributional model, particularly the cognition piece of the theory. Under the theory of learned helplessness, Seligman proposed that people differ in their explanatory, or attributional, style. Research shows that there are consistent individual differences in explanatory style. Some people tend to attribute events to internal, stable, and global causes. Such a student may explain a failure on an exam by saying that he or she is stupid and just cannot learn that subject. Explanatory style appears to generalize to new situations.

The generalizability of explanatory style or cognition is more like a trait. The generalizability of learned helplessness along with uncontrollability of events can help explain depression in some people. Seligman proposed that the uncontrollability of an aversive event enhances the fear-arousing characteristics of the event and leads to depression if the experience is prolonged, intense, or becomes frequent. Seligman also contended that the helplessness he observed in his experiments with the dogs was parallel with severe depression in humans. Some similarities include the failure to solve problems that are solvable and a lack of initiation of action. He also noted that like chronic depression, helplessness can be difficult to break up once it established. Learned helplessness cannot explain all facets of every case of depression, but it may identify a set of cognitions that are involved in at least some cases.

Relevance to Childhood Development

When children with learned helplessness encounter a difficult task, they experience an anxious loss of control and do not persist. Over time, the ability of children with learned helplessness does not predict their performance [1]. These children do not develop the metacognitive and self-regulatory skills necessary for high achievement because they do not recognize the relationship between behaviors and outcomes. Children who have developed learned helplessness become involved in an ongoing cycle of a lack of effective learning strategies, reduced persistence, and a sense of loss of control [1].

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Learning

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Synonyms

Behaviorism; Cognitive-behaviorism; Conditioning; Latent learning; Literacy; Neo-behaviorism; Social learning

Definition

Learning refers to changes in behavior and cognition as the result of experience. Traditional learning theory is

closely associated with behaviorism, cognitive-behavioral research, and an empiricist-associationist philosophy.

Description

As a psychological discipline, learning refers to changes in behavior and changes in cognition as the result of experience. Traditional learning theory is closely associated with behaviorism, cognitive-behavioral research, and an empiricist-associationist philosophy. A broad distinction may be drawn between conditioning, as represented by Watson [10] and Skinner [7] and the eclectic cognitive-behavioral learning perspectives of such psychologists as Tolman [9] and Bandura [1]. Regardless of their theoretical diversity, all learning theorists subscribe to the behaviorist maxim that the proper dependent variables in psychological research should be observable, verifiable behaviors.

Conditioning

Conditioning refers to any process by which an organism acquires new behaviors through repeated experience. There are two main types of conditioning. The first is known as classical conditioning, represented by such researchers as Pavlov [5] and the Watson [10], who popularized the term "behaviorism." The second, known as operant or instrumental conditioning, derives from the works of Skinner [7] and his followers. Classical conditioning is a form of learning in which an organism comes to associate one stimulus with another, usually prompting a behavior previously associated only with the first stimulus. It is concerned with the re-association of a reflexive behavior to a formerly neutral stimulus. Operant conditioning is a form of learning primarily concerned with the effects of reinforcement and punishment upon behaviors. The behaviors addressed by operant conditioning are much broader in scope than the reflexes of classical conditioning.

Within classical conditioning, several components of the conditioned response may be measured and serve as the dependent variable of interest. The amount of time it takes for an organism to respond to a conditioned stimulus is referred to as "latency," the strength of the response is referred to as "magnitude," and the likelihood that the conditioned response will occur at all is called "probability." Examination of these three aspects of learned behaviors has partially led to two important and influential elaborations of our understanding of classical conditioning, namely opponent-process theory, and the Rescorla-Wagner theory. The opponent-process theory, largely developed by Solomon [8], provides an associationist context for explaining certain instances (such as habituation to drugs) in which the conditioned response becomes the opposite of the unconditioned response. The Rescorla-Wagner theory, created by Rescorla and Wagner [6] allows for mathematical prediction of responses based upon the given trajectory of a learning curve, offers a possible learning-based explanation on habituation to repetitive stimuli and also helps explain how organisms distinguish among multiple conditioned stimuli at any given time.

Operant conditioning, in contrast, is not as dependent upon reflexive behavior and is primarily concerned with the effects of reinforcement and punishment upon behaviors. Operant conditioning focuses on the consequences of behaviors, and what makes learned behaviors stronger or weaker. Behaviors that are reinforced are likely to persist whereas lack of reinforcement will likely result in a decrease in the behavior. Ferster and Skinner [2] distinguished among four different schedules of reinforcement in *Schedules of Reinforcement* (1957), and their definitions have become part of standard operant conditioning lexicon. These schedules of reinforcement have been observed in both the laboratory and the real world, and behaviors reinforced using unpredictable schedules are not only highly resistant to extinction but will also continue long after reinforcement has ceased. Series of discrete behaviors can be combined in lengthy chains, resulting in very complex learning and the actual reinforcements used can be far removed from the typical biologically-based primary reinforcements that one normally associates with laboratory research. The Skinnerian concept of "radical behaviorism" conceptualizes even thought processes as subject to the rules and laws of conditioning.

Neo-Behaviorism and Social Learning

In contrast to the orthodoxy of classical and operant conditioning, neo-behaviorism is a set of diverse theories that allows for the inference of nonobservable constructs such as motivation and internal states. (As is evident from both the Rescorla-Wagner and opponent-process theories, however, classical and operant conditioning do include complex and abstract theorizing.) Social learning bridges the gap between behaviorism and social psychology.

The work of both Guthrie [3] and Hull [4] is primarily of historical interest, yet both neobehaviorists introduced important concepts to learning theory. Guthrie stressed the role of contiguity in learning, elaborating upon the necessity of properly linking the unconditioned and conditioned stimuli during classical conditioning and reconceptualizing forgetting as the establishment of new contiguities that successfully competed against the old ones. Hull attempted not only to incorporate the mathematical rigor of proofs and postulates into learning, but also stressed the importance of intervening variables, such as drive, habit

strength, and incentive value of the reinforcement. The work of both researchers helps point the way toward contemporary neural network cognitive psychology.

Tolman [9] is considered the father of cognitive behaviorism. Set apart from both classical and operant conditioning, Tolman's system examined learning aside from the confines of strict minimalist environments, preferring to use mazes rather than puzzles or Skinner boxes in the laboratory. Tolman reported that his lab rats were able to learn the routes of their mazes even prior to reinforcement, as evidenced by their shorter than expected latencies when reinforcement was finally introduced; he referred to this non-reinforced learning as "latent learning," a concept that is still current. Tolman also introduced the study of insight into behavioral learning. While insight had been a topic explored by Gestalt psychologists, Tolman studied insight learning within the context of rats in a maze. Both latent learning and insight learning are similar in that neither seems to be strict stimulus-response learning, and both make use of what Tolman called a "cognitive map," a broad purely mental schematic of the immediate environment to be utilized in order to behave efficiently and solve problems.

Social learning theory, as introduced by Bandura and elaborated upon by subsequent researchers, is even more removed from traditional behaviorist tradition. According to social learning theory, it is not necessary to be a participant in an activity in order to learn. Rather, by observing the actions of others, one can learn vicariously through modeling. This is largely learning through imitation, an aspect of learning previously overlooked by other theorists. Initially, the theory focused on the acquisition of antisocial behavior in children but the utility of social learning theory has broadened considerably, and social learning theory is not only an integral part of contemporary learning theory but also an essential component of many behavior modification programs.

Acknowledgement

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Learning Difficulty

►Learning Disabilities

Learning Disabilities

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Synonyms

Developmental dyslexia; Learning difficulty; Learning disorder; Spelling disabilities

Definition

The most influential definition of learning disabilities is found in the United States federal law Individuals with Disabilities Education Improvement Act (IDEA) 2004:

The term "specific learning disability" means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage [5].

Description

Samuel Kirk first proposed the term "learning disabilities" in 1963. When the initial United States federal special education law was passed in 1975, learning disabilities were included as one of the disability categories [3]. The definition remains the same today. The percentage of students identified with learning disabilities rose markedly in the early years following implementation of the federal law, leveling off in the late 1980s. Data from the U.S. Department of Education indicate that students with learning disabilities represent approximately one half of all students receiving special education services and about 5% of the overall school population [17].

There are several potential causes for learning disabilities. Traditionally, learning disabilities have been viewed as resulting from underlying neurological causes [8]. In fact, the term *minimal brain dysfunction* was used in the 1960s and 1970s as a synonym for learning disabilities [7]. Recent neuroimaging technologies (*functional magnetic resonance imaging* or *fmri*) have enabled scientists to pinpoint brain activity associated with academic tasks such as reading. There are documented differences in the brain functioning of individuals with learning disabilities, specifically *dyslexia* while reading [15]. These findings provide evidence that brain functioning differences are associated with learning disabilities. In addition, there is growing evidence linking learning disabilities to genetics. For example, learning disabilities has a recurrence rate of approximately 35–45% in susceptible families. This finding indicates that a single gene may be a contributing factor [10]. For some individuals, there appears to be a connection between genetic and environmental factors. Specifically, parents who have experienced reading difficulties may be likely to read less to their children [8]. Other environmental factors (e.g., children ingesting lead paint and alcohol and/or drug abuse by an expectant mother) can also lead to a child being at-risk for learning problems.

The federal law recognizes eight specific academic areas in which a student can exhibit a learning disability: (1) listening comprehension (receptive language), (2) oral expression, (3) basic reading skills (i.e., decoding and word recognition), (4) reading comprehension, (5) reading fluency, (6) written expression, (7) mathematics calculation, and (8) mathematics reasoning [5]. Dyslexia, a reading disorder characterized by poor decoding, poor spelling, and slow and dysfluent reading, is the most common type of learning disability [15]. However, many state departments of education do not use the term *dyslexia* in favor of the more general term, learning disability. Learning disabilities may co-occur with each other along with deficits in social and emotional disorders, and disorders in attention [4].

In addition, researchers have documented a *nonverbal learning disability* (NVLD), characterized by difficulties with fluid reasoning, spatial difficulties, organizational difficulties, poor problem solving skills, related mathematical weaknesses, and the lack of social ability to comprehend nonverbal communication cues [12]. Nonverbal learning disabilities are not specifically included in the federal definition.

Characteristics

Individuals with learning disabilities may encounter a range of problems in learning. However, no single individual likely displays all of the following characteristics. Individuals with learning disabilities may exhibit difficulty with language, memory, processing speed, and/or motor skills. These difficulties may result in poor cognitive strategies for learning, oral language difficulties, reading difficulties, writing difficulties, mathematical difficulties and/or poor social skills [7]. Attention problems are symptomatic for many students. Some characteristics are more likely to be exhibited at certain ages (e.g., children are more likely to be hyperactive than adolescents). Boys are four times more likely to be identified with a learning disability than girls, although there may be an equal number of girls with learning disabilities who go unidentified due to biological causes, cultural factors, or expectation pressures [7]. Learning disabilities become evident at different stages of life with the greatest impact occurring between the ages of 9 and 14 [7].

Assessment and Eligibility for Special Education Services

According to the guidelines of IDEA 2004, states may choose from a select number of assessment methods, including the IQ-achievement discrepancy method and the response to intervention method, to determine if a student is eligible for special education services under the learning disability category [5]. Prior to 2004, the IQ-achievement discrepancy model was used to identify a "gap" between a student's achievement and intellectual ability. Using this method, a child may be identified with a learning disability if he/she exhibits a severe discrepancy between achievement and intellectual ability in one or more of several academic areas under the learning disability category. However due to criticism that the IQ-achievement discrepancy model is a "wait to fail" method that does not yield information useful for academic interventions, beginning in 2004, states are no longer *required* to employ the IQ-achievement

discrepancy model. Instead, states "must permit the use of a process based on the child's response to scientific, research-based intervention"; and "may permit the use of other alternative research-based procedures for determining whether a child has a specific learning disability" [11].

The percentage of students identified as having a learning disability varies depending on the criteria used to determine eligibility. With increased pressure to implement *response to intervention (RTI)* strategies prior to referral for special education, it is hoped that the percentage of students in need of special education services will decrease. Ideally, insuring that all students receive appropriate instruction, beginning in kindergarten, and monitoring progress routinely will result in more effective instruction.

Despite controversy over the best way to assess learning disabilities, the construct of learning disabilities as characterized by *intraindividual* cognitive and academic strengths and weaknesses is valid [6]. "Fundamental to the concept of [learning disability] is the idea of 'unexpected' underachievement [13]. That is, individuals who are generally capable experience unexpected difficulty, based on specific cognitive processing weaknesses, in mastering certain academic tasks. For example, dyslexia has been characterized as a weakness "in a sea of strengths" [15, p. 58]. According to Wolf, individuals with learning disabilities can often also be highly creative thinkers or artists [18].

Effective Education of Students with Learning Disabilities

Early, effective instruction is important for minimizing the impact of learning disabilities. For early childhood students, researchers recommend embedding learning opportunities by incorporating practice into daily activities, and capitalizing on student's interests and motivation [2]. To successfully meet the needs of students with learning disabilities across all grades, teachers can differentiate instruction by using more than one instructional methodology. In order to meet the various academic needs of individuals, intervention strategies may include: increasing a student's access to instructional materials in a variety of formats, expanding test-taking options, extended time on tests, adjusting the complexity and nature of content material, providing accommodations, peer tutoring, direct instruction, explicit teaching, active and authentic learning opportunities, scaffolded instruction, reciprocal teaching and learning strategy instruction [7, 16]. Increasingly, technology (such as text-to-speech software and word processing programs) are useful for students with learning disabilities.

The National Organization on Disability provides information on transition to adulthood for individuals with learning disabilities, including post secondary education and employment [9]. Although individuals with disabilities are twice as likely *not* to complete college as peers without disabilities, there are special services provided for individuals with disabilities at the post secondary level. The employment rate (full or part time) for individuals with disabilities is only 35% as compared to the employment rate of individuals without disabilities at 78%. By promoting self-advocacy skills, educators can help students make successful transitions from high school to adulthood. IDEA, Section 504, and the Americans with Disabilities Act (ADA) provide overlapping protections to help ensure individuals have equal opportunities, are able to fully participate in their community, live independently and become economically self-sufficient [1, 14].

Learning disabilities are not isolated to the United States, but have been observed across cultures and languages. For example, there is documented evidence that individuals may experience difficulty learning both alphabet-based languages (such as English) and logographic or pictorial systems (such as Chinese) of written language [7]. Many famous, talented individuals are reported to have learning disabilities, including: Alexander Graham Bell, Winston Churchill, Cher, Tom Cruise, Walt Disney, and Magic Johnson.

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Suggested Resources

Council for Exceptional Children http://www.cec.sped.org//AM/Template.cfm?Section=Home
Learning Disabilities Association http://www.ldanatl.org/
Journal of Learning Disabilities http://ldx.sagepub.com/
Learning Disabilities Quarterly http://www.cldinternational.org/Publications/LDQ.asp

Learning Disabilities (as Chiefly Used in the United Kingdom)

►Developmental Disabilities

Learning Disability in Math

►Dyscalculia

Learning Disorder

►Developmental Dyslexia
►Learning Disabilities

Learning Goals

►Mastery Orientation

Learning Potential Assessment

►Dynamic Assessment

Learning Readiness

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Synonyms

Academic readiness; Early academic skills; Pre-academic skills; School-entry skills

Definition

Learning readiness is the physical, motor, socio-emotional, behavioral, linguistic, and cognitive skills indicating preparedness to receive formal educational instruction.

Description

The terms learning readiness and school readiness were derived from educational reforms and the outcomes from model early childhood programs. Learning readiness is the observable traits that indicate young children are ready to receive early academic instruction. The term learning readiness is associated with school readiness. However, learning readiness and school readiness refer to different aspects of early learning and education. School readiness refers to the wide range of the skills children need to acquire to enter and to be successful in a school setting. Learning readiness indicates young children's ability to receive purposeful instruction.

In 1989, the National Education Summit was convened to discuss ways to improve education in the United States. The outcome from the National Education Summit was the formation of the National Education Goals Panel and the proposal of the National Education Goals. The National Education Goals are comprised of six objectives to improve education from preschool through twelfth grade in the United States. Learning readiness was included into Goal 1 that stated "by the year 2000, all

children in America will start school ready to learn" [5, p. 3]. The National Education Goals were incorporated into the Educate America Act of 1994.

In 1992, the National Education Goals Panel attempted to define learning readiness. The National Education Goals Panel identified five dimensions that indicate children are ready to learn and to enter school [10]. The five dimensions were physical well being and motor development, social and emotional development, approaches to learning, language development, and cognition and general knowledge [10, p. 23]. The premise was that adequate development in each of these domains would indicate that children would be ready to learn in school. The National Education Goals Panel dimensions of learning provided a broad description of learning readiness embedded within the term school readiness.

Model programs for early child education have attempted to define the skills children need to learn. Many of these programs were designed to prepare economically disadvantaged children for school. The Abecedarian Project in Chapel Hill, North Carolina, has been active since the 1970s. The purpose of the Abecedarian program is to provide quality services in an attempt to prevent developmental delays and low cognitive skills as a result of early deprivation. The program addresses the needs of children 3–6 months of age through early elementary school. Parent involvement and parent education are primary components of the program. Curriculum is geared to address children's linguistic and communication skills, as well as their cognitive, early academic, social, emotional, and motor skills. The program has been successful in preventing academic failure [9].

Since its inception in 1965, the Head Start Program has provided a comprehensive program to children of low income and at-risk families. This includes children of migrant, homeless, and refugee families. The early goals of the Head Start Program were to encourage ties to the communities, strengthen family interactions, and to ensure the overall well-being of children. This included early educational instruction to prepare children to enter school [10].

More recently, goals for Head Start have shifted to focus on developing children's cognitive and pre-academic skills. This includes providing language instruction for children who do not speak English as their primary language. In 2007, the Improving Head Start for School Readiness Act (P.L. 110–234) was signed into law. The Improving Head Start for School Readiness Act of 2007 required Head Start Programs to adjust their programs to align with the educational standards established by the No Child Left Behind Act of 2003. The adjustments to the Head Start programs called for systematic monitoring of children's progress and program accountability through the use of standardized measures, similar to the requirements for public schools outlined in the No Child Left Behind Act of 2003.

The Improving Head Start for School Readiness Act of 2007 indicated that children need to have acquired adequate language, listening comprehension, pre-literacy, and early mathematic skills before entering kindergarten. The Improving Head Start for School Readiness Act of 2007 stated that children need to demonstrate the use of critical thinking and problem solving skills, such as categorization. In addition, the law indicated that children need to be able to interact appropriately with peers and adults in order to function in a school environment. The focus of Head Start and other programs for economically disadvantage children has shifted from developing strong community ties to attempting to close the achievement gaps that emerge later in school [8].

As indicated through educational reforms and early childhood educational programs, children require adequate physical, motor, linguistic, behavioral, social and cognitive skills to be prepared to receive formal instruction. Specifically, children need to have developed the abilities to self-regulate, to pay attention, and to interact appropriately with peers and adults. Children need to exhibit the abilities to use language to express ideas, to think through problems systematically, and to begin to acquire early literacy and mathematic concepts [11, 12].

Self-regulation is a foundation for early learning and influences the other components of learning readiness. Self-regulation is the modulation of behavior, emotions, and responses according to the surroundings. Children who are ready to learn are able use self-control and organize their behavior in a structured setting. Self-regulated children are able to comply with rules and follow the expectations of a classroom. Children who are ready to receive formal instruction are motivated to learn more about topics and their surroundings. They demonstrate a lessening of exploratory behavior and begin to move through their environment in an organized manner [4].

Internal motivation includes taking the initiative, setting and reaching a goal, and evaluating performance. Children who are ready to learn exhibit the ability to pay attention. Children, who are able to sustain attention, exhibit an increase in persistence to complete a task or activity. They begin to filter out distractions and inhibit impulsive responses [4].

Interpersonal skills affect learning readiness. Children need to be able to work and play cooperatively with peers. Necessary interpersonal skills include sharing, waiting,

and taking turns. Interpersonal skills include listening to the teacher and peers to learn from their ideas [1, 2].

Language, cognitive functioning, and pre-academic skills are primary components for learning readiness. Children need to be able to express their ideas, needs, and wants in order to maneuver a learning environment. Language is also used to mediate children's responses to their environment. Cognitive skills include the ability to apply and to adjust problem-solving techniques, to make inferences and predictions through thoughtful observations, and to develop an understanding of symbolic relationships [7].

Experience with early literacy and mathematics prepares children for classroom instruction. The acquisition of early literacy and mathematics are predictive of later academic achievement. Pre-reading skills that prepare young children for formal literacy instruction include exposure and use of a rich vocabulary, exposure to the different uses of language, and experiences with the uses of print [3, 8].

Early mathematic knowledge incorporates number skills such as counting using one-to-one correspondence, cardinality, and identifying amounts as more, less, or the same. Through play and interactions children learn to alter values by combining and taking away amounts. Also, pre-academic skills need to support formal mathematic instruction that include the ability to distinguishing shapes, patterns, and to recognize spatial relationships [6, 12].

In addition to cognitive and pre-academic factors, the readiness to learn is affected by children's physical and emotional well being. Children's readiness to learn is shaped by interactions with caregivers, their environment, and individual predispositions [13, 14].

Research, educational reform movements, such as the call for universal preschool, and comprehensive early childhood programs indicate the need for children and families to have access to quality interventions and programs to assist in preparing children to be ready to learn.

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Learning Skills

►Cognitive Skills

Learning Strategies

►Memory Strategies

Learning Styles

►Cognitive Styles

Left Dominant

►Left Handedness

Left Handedness

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Synonyms

Left dominant; Sinistral

Definition

Left-handedness is the expressed consistent preference for the use of the left hand over the right for germane activities in daily life.

Description

Handedness is defined and categorized in different ways. Most people define handedness as the hand that is preferred for the task of writing. Some researchers define handedness as the hand that is faster for manual tasks. Others define it as the preferred hand, regardless of its abilities. Whereas some people always use their right hand or their left hand for most activities, others use one hand or the other depending on the activity. Still other people have mixed hand usage for most functions. At one time it was thought that left-handedness was a behavioral sign of right cerebral hemispheric dominance for language.

Lefthanders usually prefer using their left hand for tasks; however, there is sound method for predicting which hand a lefthander will choose for a given task. Rarely, if ever, is a left handed individual entirely dependent upon using their left hand to accomplish all tasks. Typically, left-handed children usually are more flexible in their hand usage than right-handers; this may be because they are forced to function in a world designed for right-handers. Left-handed children can be placed at a disadvantage due to the prevalence of right-handed tools typical in society. For example, scissors, a very common tool in many children's lives are often molded in a way that makes them difficult to use for a left-handed child. Additionally, items such as school desks and computer mouse have been traditionally made with right handed individuals in mind.

Demographics

It has been estimated that 90–95% of the general population is right-handed, making left-handedness relatively uncommon. Overall, left-handedness appears to occur more frequently in men than in women, as well as occurring more frequently in both mono and dizygotic twins. Additionally, research has shown a higher than normal percentage of left-handedness in a number of childhood disorders including autism, mental retardation, and dyslexia. Researchers generally agree that the causes of left-handedness are commonly considered to be part genetic and part environmental. However, Dean and Rattan [2] and others showed the existence of genetic and pathologic left-handedness. With congenital problems being more likely with pathologic lefthanders over right.

There is no standard measure for determining degrees of handedness. Some scientists believe that there are only two types of handedness: right and non-right. These researchers believe that true left-handedness is rare and that most lefthanders are really mixed-handed. Others believe that ambidexterity – the equal use of both hands – is a third type of handedness, and some think that there are two types of ambidexterity. Other scientists believe that handedness should be measured on a continuum from completely right-handed to completely left-handed.

Traditionally, this has been measured on a lateral preference scales with very few people exhibiting a pure preference for either left or right handedness.

Much of the debate centering on research findings having to do with handedness comes back to the issue of how handedness was determined. With the variety of methods that are available to researchers in defining handedness there has been little consistence in the research.

Basis of Handedness

The physical evidence for a basis in handedness is not well-understood by researchers. Over the years left-handedness has been associated with physical and psychological causes. Additionally, in many cultures left-handedness is regarded with superstitious beliefs and considered due to supernatural occurrences.

Until the 1960s, the general theoretical consensus of handedness was that it predicted brain lateralization. Each hemisphere of the brain has some specific functioning that is lateralized to that hemisphere. For example, in the nineteenth century Paul Broca identified the left hemisphere as the major area of speech production in the brain.

Carl Wernicke later identified another region in the left hemisphere that was responsible for language comprehension. These findings help perpetuate the idea that handedness was indicative of brain lateralization.

In 1987, Geschwind, Behan, and Galaburda (GBG) published the Theory of Left-Handedness that attributed left-handedness to brain injury or trauma suffered inutero. GBG also suggested that chemical variations in the womb such as higher levels of testosterone could influence handedness.

Lifespan Development

It is commonly believed amongst researchers that handedness is not a clearly established trait in infants. In fact, many believe that babies are born as ambidextrous, and that changes in handedness can occur several times over the first few years of life. Toddlers usually go through a phase in which the use of one hand is preferred for some activities and not for others. Typically, handedness is decided by the time a child reaches 3 years of age; although it is not uncommon for a child to continue to switch handedness preferences through preschool.

Problems Associated with Left-Handedness

There are a number of difficulties associated with being left handed and interacting with a predominately right handed environment. Many of these problems are simply annoying, but a few can cause physical injury or serious problems. Due to the overwhelming percentage of people who are right handed, most systems and tools are designed with right-handed individual in mind. For example, most screws are designed for left-to-right turning, which is easier for right handed individuals to accomplish. Some other items that are designed specifically for right-handed individuals are: scissors, calculators, sports equipment, musical instruments, computers, desks, and telephones.

Writing is another area that is generally a problem for children with left-handedness. In many cultures, the avoidance of left-handedness has led to pressure for children who are left handed to learn to write right handed. In the U.S. this was a problem, but seems to be dwindling at least on the part of parents and teachers. Children may still feel pressure to perform tasks such as writing right handed because of peer pressure. Teachers may still label a left-handed child's writing as sloppy or illegible due to an unconscious reaction to writing that looks different from other children's. Additionally, children who are left-handed may be more prone to difficulties with writing as they may hook their wrist to be able to see what they are writing; which can produce sloppy handwriting.

There is a general trend over the course of history to attribute a number of bad things to left-handed individuals. For example, in history there are numerous instances where left-handed individuals were association with physical, emotional, and behavioral disorders. While not seen in the same extent today, left-handedness has been shown by researchers to put people more at risk for schizophrenia, bipolar disorder, posttraumatic stress disorder, migraine headaches, and language processing disorders such as dyslexia and stuttering.

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Left Inferior (Third) Frontal Convolution (Gyrus)

►Broca's Area

Left Inferior Frontal Lobe (Anatomically Different Areas, But Regarded as Broca's Area by Different Sources)

►Broca's Area

Leiter International Performance Scale: Revised

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Definition

The Leiter International Performance Scale – Revised (Leiter-R) is an individually administered instrument designed to assess the cognitive functioning of children and adolescents ages 2 years, 0 months to 20 years, 11 months of age. The Leiter was revised in 1997. The Leiter-R was specifically developed for children and adolescents with communications disorders, cognitive delays, English as a second language, hearing impairments, motor impairments, traumatic brain injury, attention-deficit disorder and certain types of learning disabilities as well as other populations (e.g., autism spectrum disorders) for which traditional intelligence tests may not be appropriate or valid.

Description

The Leiter-R includes two groupings of subtests. The Visualization and Reasoning Battery contains ten subtests and generates Brief IQ (ages 2–20), Full Scale IQ (ages 2–20), Fluid Reasoning Index (ages 2–20), Fundamental Visualization Index (ages 2–4) and Spatial Visualization (ages 11–20) scores. The Attention and Memory Battery also contains ten subtests and generates Memory Screener (ages 2–20), Associative Memory (ages 6–20), Memory Span (ages 6–20), Attention (ages 6–20), Memory Process (ages 6–20) and Recognition Memory (ages 6–20) scores. Additionally, the Leiter-R includes four rating scales, which can be completed the by the examiner, parent, the child or adolescent being tested (Self) and teacher, which provide multidimensional behavioral observations.

The current revision of the Leiter-R was organized around four primary issues: the need for early identification of cognitive delays, the need for measurement of small increments of improvement in cognitive ability, the need for a reliable and valid scale of intelligence regardless of language or motor ability and the need for transition planning for entering the world of work.

In fitting with the primary focus of the most recent revision, The Leiter-R is particularly useful in the assessment of younger children with little or no language skills including those with expressive and receptive language deficits and those with Autism Spectrum Disorders. This measure allows the evaluator to obtain an estimate of intellectual functioning without being overly concerned that the oral language or verbal mediation required of a verbally administered measure (e.g., traditional measures of intellectual functioning) is negatively impacting the child's performance. Although many of the tasks from the Visualization and Reasoning Battery are based on a matching paradigm and therefore may not generalize broadly to other cognitive skills, the ability to demonstrate clear cognitive strengths and weaknesses outside of the influence of language functioning is a huge asset for treatment planning.

The Leiter-R offers several updates from the earlier version including new normative data (based on 1993 census data), light weight, laminated picture cards and foam shapes that are brightly colored and child friendly and an easel format for administration. The total normative sample matches the US population well on important stratifying variables. Internal consistency reliabilities are adequate although test – retest changes for the composite scores have been found to be somewhat large. Factor analytic studies have supported the theoretical underpinnings of the test. The Leiter-R correlates well with other accepted measures of intellectual functioning including the WISC-III. The Leiter-R is also felt to be largely culturally free and studies have found the measure to be valid across a number of cultural and ethnic groups.

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Lesbian

►Homosexuality

Lethargic

►Hypoactivity

Leukemia

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Synonyms

Acute leukemia

Definition

Leukemia is a cancer of the blood and blood forming organs, including the bone marrow, lymph nodes, and spleen.

Description

Leukemia is the most common pediatric cancer diagnosis, comprising approximately 30% of all childhood cancers. Acute lymphoblastic leukemia (ALL) accounts for about 80% and acute myelogenous leukemia (AML) about 15% of pediatric leukemias; while chronic myelogenous leukemia (CML) and juvenile myelomonocytic leukemia (JMML) are infrequent. Annually approximately 3,000 new cases of ALL and 500 of AML are diagnosed in the United States [3].

The hallmark of leukemia is bone marrow dysregulation. The bone marrow makes red blood cells which carry oxygen, white cells, which fight infections, and platelets, which help clot blood. Leukemia is a cancer of the early blood forming cells and most commonly affects the white blood cells, also known as leukocytes. Sometimes certain types of immature white blood cells, often known as blasts, undergo a random mutation that can cause the cells to grow and multiply unchecked. The blasts suppress normal bone marrow function, which results in decreased red blood cells, decreased platelets, and decreased functional white blood cells.

Leukemia is diagnosed in all age groups with peak incidence between ages 2 and 5 years of age. Leukemia rates vary by age, gender and race. For example, males are more likely to be diagnosed with ALL as compared to females in children under the age of 15. Similarly, ALL rates are significantly lower in African American children than Caucasian children; but no ethnic differences are noted among children diagnosed with AML [3].

There are no known causes for ALL. However, increased risk for ALL is associated with genetic conditions such as Down syndrome, neurofibromatosis, Schwachman syndrome, Bloom syndrome, Li-Fraumeni syndrome, Klinefelter syndrome, or if a child has received medications to suppress the immune system such as after organ transplantation. There also is a 2–4 times higher incidence of ALL in siblings than in children in the general population. Finally, children who have received prior chemotherapy or radiation treatment for other types of cancer are also at risk for developing leukemia.

Clinically, children may present with low-grade fever, signs of infection, fatigue, increased bruising or bleeding, and facial pallor. When the diagnosis of leukemia is suspected the child is referred to a Pediatric Hematologist/Oncologist for a full evaluation, which includes a thorough physical examination, blood tests, and a needle aspirate of the bone marrow. Based on this work-up, the specific leukemia type is confirmed, and chemotherapy is begun to treat the condition.

At diagnosis children are categorized as having low, intermediate, or high risk based on both the child's clinical features, chromosomal abnormalities noted in the leukemia cells, and response to chemotherapy. Higher risk factors include low or high age (i.e., children under the age of 1 year or older than 10 years of age), a white blood cell count greater than 50,000, leukemia subtype, central nervous system disease (i.e., blasts in the spinal fluid), certain chromosomal alterations in the leukemia cell, and slow response to initial treatment. These factors would require more aggressive treatment.

Medical treatment protocols for ALL typically include the following stages: Induction, Consolidation, Delayed Intensification, and Maintenance. The Children's Oncology Group (COG) conducts randomized clinical trials to determine the best therapy for each treatment phase. The goal of clinical trials is to increase cure rate for leukemia and reduce the toxicity of the therapy. Current ALL standard risk treatment protocols are 2 to 2-and-a-half years for girls and 2-and-a-half to 3 years for boys. After the first 6 months most of the chemotherapy is generally administered on an outpatient basis. High risk ALL protocols may require more frequent inpatient chemotherapy admissions. Treatment for AML usually requires 4–5 months of intensive chemotherapy administered as an inpatient. Some AML patients may receive a bone marrow transplant.

Induction is the initial treatment phase for ALL and usually lasts 4 weeks. Children receive chemotherapy orally, intravenously, as well as intrathecally (i.e., injected into the fluid surrounding the brain and spinal cord). The goal of this phase is to induce remission. Remission is defined as an absence of signs and symptoms of leukemia, a return to normal of blood and bone marrow values, and less than 5% leukemia cells in the bone marrow. Approximately 95% of children with ALL achieve remission

within 4 weeks of beginning therapy. Once in remission the *consolidation* phase of therapy is initiated and lasts from 4- to -6 months. During this period the child receives repeated cycles of systemic chemotherapy agents as well as continued intrathecal chemotherapy to eliminate any remaining leukemia cells. For certain types of leukemia, or if leukemia cells were present in the spinal fluid at the time of diagnosis, radiation therapy may be given to the brain and the spinal column. During *delayed intensification* the child receives chemotherapy agents similar to those received in the first 6 months of treatment (i.e., during induction and consolidation). Research shows that both low and high-risk ALL patients benefit from Delayed Intensification. *Maintenance* therapy is the final phase of treatment and generally lasts 2–3 years. Maintenance is much less intensive than the previous treatment and consists mostly of oral medications administered at home, as well as intermittent intravenous and intrathecal medications given in the outpatient clinic. Bone marrow transplant may be necessary for children with high-risk features including relapse, and treatment-resistant diseases, or other disease subtype factors that increase the likelihood that standard treatment will be unsuccessful.

Currently, approximately 75% of children are cured (i.e., they remain disease free 2 years after completion of treatment). More relapses or recurrences occur either on therapy or within 2 years after completion of therapy. Late relapses (beyond 5 years) are rare. If the leukemia returns, another remission will often be achieved with more aggressive medical therapy. Many children will stay in remission with additional chemotherapy, but a bone marrow transplant may be recommended for some children. Approximately 50% of children will be cured from AML with chemotherapy and, if available, a bone marrow transplant using a matched related donor.

Relevance to Childhood Development

Children vary in the way they cope with the news of their cancer diagnosis and treatment [3, 4]. Coping responses may include withdrawal, becoming very scared or worried, and/or lashing out in anger. During induction the child learns to deal with painful procedures, cope with the physical symptoms and side effects (e.g., nausea, vomiting, fatigue), adjust to interruptions in school and social activities, adjust to the hospital environment, and manage emotional reactions and responses. During the middle to later phase of treatment the child learns to deal with physical side effects (e.g., weight gain on steroids, hair loss), adhere to treatment regimen, and try to maintain academics, social activities, and communication with close friends. After completion of treatment the child learns to acknowledge concerns over relapse or recurrence, make meaning of their cancer experience and shift roles from being a "cancer patient" to being a survivor [1].

Due to improved medical treatment more children are surviving and consequently increased emphasis is being placed on medical, psychological, and learning late effects. Potential medical late effects include short stature, delayed pubertal development, infertility problems, and neurocognitive deficits. Neurocognitive late effects secondary to intrathecal chemotherapy and radiation therapy include problems with executive function including short attention span, problems with organization, decreased processing speed, difficulties with visual-spatial and visual-motor tasks, problems with visual memory, and academic difficulties with reading comprehension and math calculation [2]. Some ALL survivors also are at risk for development of anxiety, symptoms of posttraumatic stress, problems with identity, and decreased self-esteem [4]. However, there also is some evidence of positive growth from going through the cancer experience.

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Lexapro®

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Synonyms

Escitalopram

Definition

A prescription medication FDA approved for the treatment of major depressive disorder and generalized anxiety disorders.

Description

This medication is a selective serotonin reuptake inhibitor available in a tablet or as an oral solution.

The recommended starting dose for this medication is 10 mg taken once a day. Maximum suggested dose is 20 mg a day. This medication should only be taken as directed by a doctor. This medication may need to be taken for four weeks before improvement in symptoms is seen.

This medication should be taken with or without food. Avoid drinking alcohol. Tell your doctor if you have a history of a seizure disorder or liver disease.

Concomitant use in patients taking monoamine oxidase (MAO) inhibitors is not advised. Serotonin syndrome may occur with the use of certain other serotonergic drugs.

Some side effects are listed here: headache, drowsiness, constipation, difficulty sleeping, decreased sexual desire, decreased appetite and weight loss, diarrhea, and dizziness. Certain side effects may go away during treatment. Tell your doctor immediately if you notice the following: confusion, irregular heartbeat, muscle pain, shortness of breath, or swelling.

If you choose to stop taking Lexapro®, you are encouraged to tell your doctor and slowly taper this medication to prevent withdrawal symptoms.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development

Lexapro® is not FDA approved for use in children.

A medication guide must accompany this medication containing information related to the increased risk of suicidal thinking and behavior in children, adolescents, and young adults compared to those not taking the medication. Doctors will monitor patients closely for worsening of symptoms, change in behavior, and thoughts of suicide. Patients are strongly encouraged to notify their health care provider to report sudden changes in mood, behavior, thoughts, or feelings.

Women should let their doctor know if they are pregnant or planning to become pregnant. Talk with your doctor if you plan to breastfeed, as this medication enters the breast milk.

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Lexical Configuration

▶Syntax

Library Therapeutics

▶Bibliotherapy

Librelease

▶Chlordiazepoxide

Libritabs

▶Chlordiazepoxide

Librium

▶Chlordiazepoxide

Life Events

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Synonyms

Negative life events; Stressful life events; Undesirable life events

Definition

Life events have been defined as a social experience or change with a specific onset and course that has a psychological impact on the individual [7]. This definition makes no assumption about the type, duration and effects of the events. Some common examples of life events include parental divorce or separation, school change, house relocations, and bereavement.

Description

All individuals experience hundreds of life events throughout their life time that differ in magnitude, duration and meaning. Some of these events are major and involve high level of change (e.g., death of a love one), and some events are minor and have little impact on their own (e.g., minor accident). Life events are important as they could facilitate positive growth and adaptation, or they could contribute to illness and disturbances. Studies on life events have focused on two major areas:

(1) Description of events throughout the life span: This line of research has focused on the developmental nature of life events and has identified several characteristics of life events. First, some biological (e.g., physical growth) and social events (e.g., school transitions) are age-related in that they occur frequently during childhood and adolescence. Although such life events are part of development, they may be problematic if they occur at different (than expected) point in the life span. Second, although some events are unique of particular individuals, some (e.g., war) may affect on the entire culture. Finally, developmental approach also stresses the importance of historical or cohort effects of events. For example, those who experienced adolescence during the 1930s economic depression have a different event history than those who experienced adolescence during the 1960s economic affluence.

(2) Impact of life events during childhood and adolescence: This line of research is concerned with the relationship between life events and psychological/physical disorders. Some studies investigated the mechanisms through which exert their effects on individuals, and some examined factors that predicted the outcomes of life events on the individual's development.

Assessment of Life Events

Impact of life events have traditionally been examined using self-report questionnaires or life events checklists. In such studies, the number of events experienced over a given period of time can be counted. The problem of this method is an assumption that all events have the same effect. Although this problem could be reduced by giving a stress score which lead to change in the child's life such life change units have been reported to be insensitive to individual differences that surround life events. Another important issue is to determine whether the events are the cause, consequences of psychological disorders, or of it is an illness-related behaviour [15].

A major advantage of using checklists is that they are easy to administer without much training requirement. As such they are economical. Some examples of life events checklists are: Life Events Checklist (LEC; [11]); Life Event Record (LER; [3]), Brief Adolescent Life Event Scale (BALE; [17]), Adolescent Perceived Events Scale (APES; [4]).

Another approach to measure life event is through interviews. The use of interview is time consuming, however, this factor is outweighted by the quality of information collected [9]. The ability to collect information surrounding a life event enables the evaluation of the personal meaning that a life event contains [2]. When studying children, it is unclear from whom the information about life event should be collected. For the under 8-year olds, parent's report is regarded as the most reliable informant because of children's lack of cognitive skills to recall information in an accurate way, and children's awareness of important sources of life events. When studying adolescents, adolescents themselves have been considered as the best source of information [13].

Some examples of commonly used interviews for the assessment of life events are:

Life Events and Difficulties Schedule (LEDS; [2]), and Stressful Life Events Schedule (SLES; [18]).

Relevance to Childhood Development

Research conducted during the past few decades have shown life events to be related to the onset of a wide range of psychiatric disorders, such as depressive, anxiety, substance use, and conduct disorders. For example, since the 1970's, studies have noted the influence of negative/stressful life events on the onset of depression, and research has shown that stress is specifically predictive of depressive symptoms in children and adolescents [9, 14]. Life events predict subsequent depressive disorder, and those which are chronic in nature (e.g., chronic family turmoil) also influence the persistence of depressive symptoms [6]. The types of life events which act as risk factors for major depressive disorder seem to differ in boys and girls. In Reinherz et al.'s study [16], for example, the death of a parent before age 15, pregnancy, and an early onset of

health problems (e.g., respiratory disorders, mononucleosis, arthritis and headaches) which interfered with daily functioning were antecedent risks for major depressive disorder in females; in males it was the remarriage of a parent [16].

In a study by [1], depressed adolescents tended to use more negative alternatives (e.g., becoming intoxicated, isolating themselves, or running away from home), whereas the non-depressed adolescents generally used positive alternatives (e.g., minimizing the importance of the events) in dealing with the life events experienced. According to several other authors, major depressive disorder was generally positively correlated with emotion-focused strategies [4] and cognitive avoidance [5], and negatively correlated with problem-focused coping [4]. In Nolen-Hoeksema et al.'s study [14], the association between life events and depressive disorders was related to chronic disruption in the child's environment; among older children, the impact of life events on depressive disorders was mediated by pessimistic explanatory style, and among girls by self-perceived body image, self-esteem, and self-efficacy.

Children who were exposed to high stress levels were especially likely to become depressed if the mothers were currently symptomatic [10]. Thus, the presence of the mother to help buffer the ill effects of stress may moderate the impact of stressors on children's probability to develop depressive disorders. In Goodyer et al.'s study [8], adolescents whose mothers had a history of psychiatric disorder were exposed to more negative events than those whose mothers had no such history. Thus, both lifetime maternal psychiatric disorder and increased exposure to undesirable life events significantly exerted an increased risk for major depressive disorder in adolescents.

It should, however, be stated that life events appear to be a nonspecific risk factor for major depressive disorder; that is, negative life events increase the risk of both depression and a number of other psychiatric disorders. As shown by [12], parental loss before the age of 17 years was significantly related to the presence of five major psychiatric disorders.

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Life Satisfaction

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Synonyms

Quality of life; Well-being

Definition

Life satisfaction is a cognitive appraisal process in which individuals subjectively assess life quality on the basis of their own unique set of criteria.

Description

In recent years there has been an increased emphasis on examining the positive aspects of human nature. This movement, known as positive psychology, has been defined as "the scientific study of ordinary human strengths and virtues" ([10], p. 216). One topic within the domain of positive psychology that has attracted substantial interest is how and why individuals, including children and adolescents, experience their lives in positive ways [5]; that is, there has been increased interest in examining those variables that contribute to the development of subjectively perceived life satisfaction.

Research on life satisfaction has been conducted from social indicators, marketing, and quality of life perspectives [11]. However, much of the recent research in this area has been most influenced by the work of Diener and his colleagues [1, 2], who conceptualize life satisfaction as one of three important components (the others being positive and negative affect) within the larger domain of subjective well-being. This perspective conceptualizes life satisfaction as "a cognitive judgmental process in which individuals assess the quality of their lives on the basis of their own unique set of criteria" ([9], p. 164).

Although the appraisal of life satisfaction is a cognitive one, it is largely based on the positive experiences and emotions that collectively contribute to subjective well-being. However, these cognitive judgments are largely independent from an individual's immediate and emotional interpretation of a particular event; reports of life satisfaction "are believed to transcend momentary emotional experiences within and across life situations and are thus considered more stable than affective states when assessing life quality over time" ([11], p. 28). That said, researchers are recognizing that life satisfaction is tied to specific, concrete experiences, and that it yields unique variance not accounted for by assessing more global life satisfaction indices alone. This has lead to the development of measures that assess satisfaction within specific domains, such as students' perceptions of school satisfaction [11].

Most of the research on life satisfaction to date has been conducted with adults, with research involving child and adolescent samples having begun only recently. Research suggests that although most children and adolescents are generally satisfied with their lives, a minority appear very dissatisfied [7]. Low life satisfaction is associated with several adverse outcomes, including those related to internalizing problems (e.g., depression, anxiety) and school adjustment. In contrast, high life satisfaction functions as a psychological strength and actively fosters resilience and well-being [7]. For example, in a study examining the characteristics of adolescents who reported high levels of global life satisfaction, Gilman and Huebner [6] found that high life satisfaction was associated with mental health benefits that were not found among youth reporting comparatively lower life satisfaction levels.

Moreover, school experiences can strongly influence life satisfaction in children and adolescents. Behavioral contexts (e.g., grades received; in-school conduct), social contexts (e.g., school climate), and cognitive contexts (e.g., academic personal beliefs; attachment to school) associated with schools are all linked to students' global life satisfaction [11]. Some research has suggested that academic achievement in school is moderately correlated with adolescents' global life satisfaction [6] and school satisfaction [3]. Suldo and Shaffer [12] found that middle-school students with the highest reported levels of subjective well-being had superior grades in courses and superior scores on standardized achievement tests. In contrast, lower levels of life satisfaction have been associated with problem behaviors in school, including disruptive and acting-out behaviors [11].

Over the past decade, several psychometrically sound life satisfaction scales for children and adolescents have been developed on the basis of unidimensional or multidimensional models. Most reviewed measures to date have adequate internal consistency reliability and acceptable test-retest reliability across several time frames (up to a year), and have also demonstrated strong evidence of various types of validity [4, 11]. To date, most measures have been self-reports and have been primarily used to illustrate similarities and differences between life satisfaction and related psychological constructs, such as self-concept [7].

The assessment of life satisfaction in children and adolescents is still in its beginning stages and more research is needed. It is clear, however, that assessing constructs such as life satisfaction provides a broader, more comprehensive perspective of psychological functioning, and that assessing problems in the absence of strengths provides an incomplete and distorted picture of children and youth [8]. Given that life satisfaction is a meaningful indicator and determinant of well-being in

children and adolescents, school and clinic-based mental health professionals should become well-versed in its assessment as well as interventions to promote it.

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Life Style

▶Adler, Alfred

Lifestyle Mores

▶Cultural Difference

Limbic System

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Definition

The Limbic System is a network of brain structures that together play a pivotal role in emotional processing and regulation as well as aspects of memory.

Description

The Limbic System represents one of the three divisions of the Telencephalon, in addition to the Basal Ganglia and the Cerebral cortex. Anatomically, the Limbic System is a network of structures that surround both the basal ganglia and the thalamus [1]. These structures include, but are not limited to, the Hippocampus, Dentate Gyrus, Cingulate Gyrus, Septal areas, Amygdala and aspects of the Diencephalon [4]. From a functional standpoint the Limbic System is best conceptualized as a holistic system as few one-to-one structure-function relationships have been established. Rather, many of the structures included within the system demonstrate overlapping roles in the modulation of the various functions regulated by the limbic system. Specifically, the Limbic System, in concert with aspects of the Frontal lobes and Temporal lobes, are involved in the control of memory and emotion [2]. This corresponds with aspects of emotional processing and regulation as well as aspects of recent memory [4]. Beyond these areas, which are most commonly linked with the interconnections and workings of this network of structures, the Limbic System has also been associated with autonomic functions (e.g., arousal), and olfaction [4]. Furthermore, the limbic system has been found to play a pivotal role in mediating the drives or instincts that assist in the attainment of fundamental biological needs [2].

In terms of the Limbic Systems role in memory, explicit memory, including semantic and episodic memory, represents the domain of memory that is dependent upon the network. However, there is greater reliance on the actions of the Hippocampal formation, Amygdala and Rhinal cortices in comparison to other structures of the Limbic System [3]. In addition, the Prefrontal cortex as well as additional structures of the Temporal lobe that do not fall under the umbrella that is the Limbic System, are linked to the aforementioned domains of memory [3]. Yet, the key component still remains to be the Hippocampal

formation as it has been specifically linked to memory acquisition [5]. The role of the Hippocampal formation in memory has been best seen in individuals with bilateral injuries of the Hippocampus, such as the classic case of H. M. who following bilateral Hippocampal resection presented with dense anterograde amnesia in which he had severe difficulties in learning new information.

Aside from those structures included as part of the network, the Limbic System has also been closely related to the Hypothalamus. It is this connection that provides for the integration and organization of autonomic processes related to the emotional expression of behavior [5]. In terms of those structures viewed as playing more prominent roles in the regulation of emotions, the Cingulate gyrus and Amygdala constitute those of greatest interest. While the Amygdala has been linked to aspects of fear conditioning, in addition to strengthening stored memories by linking emotional cues to the information to be recalled, the Cingulate gyrus plays a vital role in controlling the experience of emotion [2]. Again, this is related to its projections to the Hypothalamus, which is then responsible for directing the autonomic and endocrine effectors of emotion [2]. However, while this relationship and the workings of the Hypothalamus may impact the experience of emotion, higher cortical areas, such as the Frontal lobes, constitute the gateway that in turn determines what behavior is exhibited in response to the emotional experiences. This is the basis of inhibition.

Finally, the manner in which the Limbic System is involved in mediating drive and/or instincts for basic survival is largely related to the bidirectional nature of the Limbic-Hypothalamus link. Specifically, while emotional reactivity, as processed by the Limbic system, transmits to the Hypothalamus to mediate concurrent organization of autonomic responses to the emotionally stimulating environment, the Hypothalamus is the starting point in terms of signaling when there is a biological need, this impulse is then passed along to the Limbic System to assist in increasing arousal and processing the nature of the stimuli.

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Limbitrol

▶Chlordiazepoxide

Limited Play

▶Restrictive Play

Linguistic Determinism

▶Whorfian Hypothesis

Linguistic Intelligence

▶Gardner's Theory of Multiple Intelligences

Linguistic Relativity

▶Whorfian Hypothesis

Literacy

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Synonyms

Book Learning; Learning; Reading/Writing Proficiency; Scholarship

Definition

Literacy is the ability to articulate one's thoughts, listen, read and write.

Description

The National Literacy Trust (NLT), a non-profit organization for the enhancement of an individual's life through literacy, defines literacy as the ability to speak, listen, read,

and write in order to fulfill one's potential. The NLT argues that speech, language, and communication skills are essential in developing reading and writing competency [5]. Literacy does not refer to a single ability but to different types and levels of skills. At one end of the spectrum are the early developing skills in young children that are essential to literacy growth. These are referred to in the literature as emergent and early literacy skills. At the other end of the spectrum are the essential skills for functioning adults, identified by the National Assessment of Adult Literacy (NAAL) as prose, document, and quantitative literacy [4].

Much of the research in the last decade has focused primarily on the reading development of young children. According to the most recent National Assessment of Educational Progress (NAEP) report, approximately one fourth of fourth graders fail to exhibit basic levels of reading skills and one tenth of fourth graders fail to demonstrate basic writing skills. In particular, children in low-income households display disproportionate literacy and writing skills [3, 7]. Furthermore, the NAAL 2003 report indicates that there are 11 million adults in the United States who are illiterate. Furthermore, 14% of adults (30 million) are performing below basic at the most simple and concrete literacy level [4].

Emergent and Early Literacy

Understanding the multidimensional aspects of literacy is crucial to reducing the illiteracy rate. At the beginning level, researchers often refer to two types of literacy skills that are considered to be the precursors to literacy development: emergent and early literacy. Emergent literacy refers to a broader concept of literacy that starts prior to formal instruction and leads to an awareness of print. Embedded within this concept are specific skills that relate to reading development. These skills are an awareness of print, relationship of print to speech (i.e., understanding the differences between oral and written language), comprehension of text structures (i.e., knowledge of grammar and organization of stories), phonological awareness (i.e., sensitivity and awareness of sounds in oral language), and letter knowledge (i.e., knowledge of the alphabet and related sounds) [2].

The other type of literacy skill, early literacy, refers to the discrete basic skills that are the foundation for reading success. Researchers have examined skills such as letter knowledge, phonological awareness, concepts of print, and naming of letters, colors, and objects to determine acquisition rates and prediction of later achievement [2]. Students are expected to learn the aforementioned skills during the first formal years of education. Knowledge of letters and phonemic awareness have been found to bear a strong and direct relationship to the success and ease of reading acquisition [1, 6]. This relationship is strong despite the instructional approach used. The predictive strength of these two skills suggests that the letter-to-sound relation is of special interest to beginning readers [1].

The letter-to-sound relation is referred to in the literature as phonological awareness, which refers to the sensitivity of sounds in spoken words as well as the ability to manipulate the sounds. Phonological awareness is but one skill within the abilities of phonological processing. The ability to manipulate sounds in oral language encompasses a broad range of skills that are hierarchically arranged. In the beginning, phonological awareness activities may include rhyming or identifying words with similar beginnings or endings. Later phonological activities require more manipulation at the phoneme level (i.e., segmenting or blending activities). Phonological processing abilities include three types of skills: phonological awareness, phonological coding, and retrieval of phonological codes. Phonological coding refers to the ability to hold phonological information in working memory, while retrieval of phonological codes refers to the rate at which an individual can access the phonological information. Each of these processing abilities is implicated in the varying levels of literacy achievement. In addition to being able to manipulate sounds in oral language, knowledge of the written symbols that represent sounds in language is also important. Letter naming fluency in particular has been found to be a good predictor of reading success. The acquisition of letter knowledge typically follows a gradual accumulation of alphabet knowledge from 3 to 7 years old.

During the formative years of literacy acquisition, students are learning to read. By the time students reach third grade, they are reading to learn. Accordingly, the building blocks of later years focus primarily on fluency and comprehension. Developing reading fluency is critical to becoming a competent reader. Research suggests that fluent readers are more likely to comprehend what they read and are more likely to seek out reading opportunities [2].

Adult Literacy

The skills necessary for developing fluent reading are the building blocks for literacy activities in adulthood. While literacy in earlier years focuses on learning the skills necessary for fluent reading, literacy in teen to adulthood years focuses on functional literacy. The NAAL, in its assessment of adult literacy, addresses prose, document, and quantitative literacy. Prose literacy is defined as the ability to search, comprehend, and use information from

continuous texts such as news articles and instructional materials. Document literacy is the ability to search, comprehend, and use information from noncontinuous texts such as job applications, maps, and food labels. Quantitative literacy refers to the ability to identify and perform computations using numbers embedded in printed materials (e.g., balancing checkbooks). These literacy tasks require seven types of literacy skills: the ability to search text efficiently, to infer from texts, to decode and read fluently, to apply knowledge, to understand the structure and meaning of sentences, to identify the calculations required to solve a problem, and to perform the calculations [4]. In summary, literacy refers to the range of skills that are essential for an individual to realize his or her potential. It is the ability to understand oral and written materials and communicate one's intentions clearly.

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Literacy Development

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Synonyms

Reading development; Writing development

Definition

Literacy typically includes the two areas of reading and writing. Literacy development refers to the on-going development of skills needed to successfully communicate through written communication.

Description

Communication through written texts is a two-sided conversation. Writers capture their thoughts and ideas in written text and the reader actively receives and responds to written texts. Reading for understanding requires an active thinking process that is influenced by the reader's prior knowledge and experiences [6]. This active thinking process develops over time in a natural state that "mimics children's natural development of oral language skills" [7].

Literacy development is reported to be a natural process that begins at birth. The "pre-reading stage" [3] or *stage 0*, involves caretakers reading to, speaking to, and modeling writing. Chall describes this stage as the moment in literacy development where children are acknowledging the surrounding print and spoken language. The next stage is referred to as *stage 1*. This stage begins in the early primary years when children learn about the *alphabetic principle* and is referred to as the "Initial Reading or Decoding Stage."

The next stage is referred to as stage 2, which involves readers building automaticity with the associations acquired in stage 1. During stage 2, readers participate in continual practice and are exposed to an abundance of print at an independent or easy level, which assists readers with acquiring automaticity. Stage 3 begins reading to learn during grades 4–8 where children are refining their print skills and stage 4 occurs during the High School years as students are developing multiple perspectives, Finally, stage 5 transpires during college years and beyond.

Relevance to Childhood Development

Literacy Development encompasses perspectives inclusive among theorists over the past 80 years, from the 1930s to present. Several different theories of development include: Piaget's Theory of Cognitive Development (1969), Maturation Theory (1931), Holdaway's Theory of Literacy Development (1969), Stage Models of Reading (1983), Emergent Literacy Theory (1985), and Family Literacy Theory (1983). The culmination of these theories is relevant to child development as they impact the teachers' knowledge and understanding of child development. This realm of knowledge is essential in providing appropriate literacy instruction.

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Literatherapy

►Bibliotherapy

Literature Based Instruction

►Whole Language Approach

Lithane

►Cibalith-S

Lithane®

►Lithium

Lithium

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Synonyms

Cibalith-S; Eskalith®; Eskalith-CR®; Lithane®; Lithobid®; Lithonate®; Lithotabs®

Definition

A prescription medication FDA approved for the management of bipolar disorder and treatment of mania in patients with bipolar disorder.

Description

This medication works in the central nervous system, but the exact way this medication works is not known. Lithium is available in short acting capsules, short acting tablets, and short acting syrup. It is also available in both long acting capsules and tablets. Other reasons this medication may be taken, which are not FDA approved, are as an augmenting agent for depression, aggression, post-traumatic stress disorder, and conduct disorder in children.

The recommended starting dose for this medication in short-acting form is 300–600 mg taken three times a day. For long-acting dosage forms, the recommended starting dose is 300–600 mg three times a day or 450–900 mg twice a day. Maximum suggested dose is 1,800 mg a day. Doses for children over the age of 12 are generally similar to doses for adults. This medication should only be taken as directed by a doctor. It may take 1 or 2 weeks to see the effects of this medication.

Lithium may be taken with food if it upsets your stomach. It is recommended to limit caffeine intake and avoid drinking alcohol. It is recommended to drink two or three liters of water daily. Use caution in hot weather and in activities that may make you sweat. Inform your doctor if you have heart disease or kidney disease. Also, tell your doctor if you are dehydrated or have low sodium. It is very important that you do not take more of this medication than your doctor prescribed. Your doctor will monitor lithium levels in your blood. The slow release or sustained release products must be taken whole, do not crush or chew.

Some side effects are listed here: swelling, changes in heart rhythm, dizziness, sedation, restlessness, headache, fatigue, dry or thinning hair, changes in thyroid function, upset stomach and diarrhea, increase in urination, weight

gain, and blurred vision. Certain side effects may go away during treatment. Tell your doctor immediately if you notice the following: diarrhea, tremors, lack of coordination, muscle weakness, blurred vision, seizures, or slurred speech. These may be signs of an overdose of this medication. If these should occur, seek medical attention immediately.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development

Lithium is not FDA approved for use in children younger than 12 years old. This medication may cause weakened bones in children.

Women should let their doctor know if they are pregnant or planning to become pregnant. This medication has been shown to cause adverse effects to the fetus. Talk with your doctor before breastfeeding.

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Lithizine

►Cibalith-S

Lithobid

►Cibalith-S

Lithobid®

►Lithium

Lithonate

►Cibalith-S

Lithonate®

►Lithium

Lithotabs

►Cibalith-S

Lithotabs®

►Lithium

Little People

►Dwarfism

Locke, John

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Life Dates

1632–1704

Introduction

John Locke, an English politician, doctor, and philosopher, was a forerunner of British ►Empiricism and is referred to by some as the father of cognitive psychology. Locke's view of the mind and the origin of knowledge and ideas was reductionist and individualistic; he believed that at birth no innate ideas exist and that all knowledge is derived from personal experience.

Educational Information

Locke, similar to most wealthy children of his era, was homeschooled until he was granted admission to Westminster school. Westminster was a private grammar school for privileged and intelligent adolescents and was where he became proficient in many different languages, such as Latin and German. Locke was named the Westminster School King's Scholar and was subsequently granted admission to Oxford University. After achieving his undergraduate degree, Locke received his master's in medicine and indulged in other educational interests such as philosophy (Locke was especially well read in both Plato and Descartes) and government. By 1650, he had obtained his master's and decided to stay at Oxford to teach for the next few decades.

Though the schools Locke attended largely influenced his education, Locke's father, Locke's bent toward travel, and the political zeitgeist of his time had just as large an impact. Locke's father was a respected political radical who believed in ▶parliament rule (or rule by the people) instead of monarchical rule. Locke grew up in what has been named the "Glorious Revolution": a time in English history when political unrest and change inspired many to become radical thinkers and to challenge not only political but philosophical hegemony.

Accomplishments

Locke's most well known accomplishments are his writings, which were largely penned during the 1690s. Locke's *An Essay Concerning Human Understanding* has widely influenced philosophical and psychological thought pertaining to the processes of the mind and the origin knowledge. Locke's *Two Treatises on Government* was partly a polemic against monarchy and influenced the decision of America's founding fathers to establish a democracy instead of a monarchy in the New World. Locke also wrote religious pieces, such as *Letters Concerning Toleration*, which influenced the Protestant Reformation in England and which precipitated America's laws on the separation of church and state. A lesser-known piece by John Locke is *Some Thoughts Concerning Education*, which is a compilation of letters Locke wrote to friends on how to parent their children. Though Locke was never a father, he believed that his ideas on knowledge acquisition made him a resource for parents in search of how to help their children develop appropriately. In addition to his writings, Locke was an influential leader at Oxford. He was named the Censor of Moral Philosophy and opened an experimental lab on Oxford's campus. Though Locke was a trained physician, medicine was more of a hobby to him than a profession.

Contributions

Locke's contributions to psychology are prodigious. Locke, in contrast to many of his philosophical contemporaries, abandoned the question of whether or not there is an actual reality and assumed the workings of the mind were real and could be studied. In order to understand the way the mind worked, Locke took an historical, reductionist approach. Locke derived his understanding of knowledge acquisition by breaking knowledge down into its smallest parts (sensory experiences) and by considering the developmental history of each person (at birth people have little or no knowledge and then accumulate it as they develop). Lockean thought marked a philosophical shift from the use of logic to understand reality to empiricism, or the use of systematic observation to understand reality. For example, Locke decided that because at birth we require other people and sensory experiences to grow, that each person is born a blank slate and this blank slate is influenced solely by experience. Or, that all knowledge and ideas are derived from observable, concrete sensory input instead of from innate or genetically predisposed tendencies. Locke asserted that if we are willing to attend to stimuli, then sensory input is acquired passively. Once this input has reached our mind, then our mind actively reflects on (or perceives) the input and associates this new input with previous experiences. This process of reflection and association results in complex thoughts, and throughout our lives we have increasingly more sensory input that gives rise to more complex thoughts and thus more knowledge.

Locke's delineation of the process of association has especially influenced psychology. In cognitive psychology, association has influenced memory research; many cognitive psychologists believe that we retrieve memories by thinking of an idea that is associated with past experiences and/or by having new experiences that are associated with past experiences. In behavior psychology, the principle of association was applied learning theory. Behaviorists assert that we associate certain behaviors with particular outcomes and thus either increase or decrease that behavior depending on that behavior's associated consequences.

Locke's "blank slate at birth" or "▶tabula rasa" belief also had strong humanitarian implications. To say that each person is born a blank state essentially means that all people are equal at birth. Thus, Locke's view of the nature of knowledge caused him to antagonize the patriarchal views of his time and possibly jump-start the feminist movement [3]. Also, this belief landed Locke on the nurture side of the ubiquitous nature-nurture debate in psychology, a debate that may never be fully

resolved but that will always be important to both clinical and experimental work.

Possibly the most important contribution Locke had to psychology was his role in founding British Empiricism, a scientific school of thought that believed knowledge can only come from observable experiences. Empiricists also believed that the further one's conclusions moved from directly observable experiences, the more likely one was to make a thinking error. Though Locke would not have been a proponent of the psychological method of ►introspection that succeeded him (which depended on the self-report of private, unobservable thoughts), his empirical work did encourage the study of the mind simply because he was one of the first to unequivocally claim that the mind was real and could be studied.

Further, several of Locke's theories on how to raise children are still present in child rearing practices today. For example, because Locke believed that all knowledge is learned via experience, he encouraged parents to provide young children with as many sensory experiences as possible. We now know that certain sensory experiences must be present during critical and sensitive periods in the first years of life to facilitate normal development. In older children, Locke believed knowledge was the path to reason, and that if one had multiple divergent experiences then one would be capable of reasoning in a moral, upright fashion [1]. According to Locke, gaining knowledge via experience was the ultimate path toward righteous, pro-social actions. Thus, Locke influenced many human rights movements. Further, Locke may have influenced person-centered, Humanistic thought by his contention that because everyone has had different sensory experiences, differences between people must be tolerated. Further, Locke thought that when trying to understand and tolerate others we must make an effort to understand their phenomenological worldview.

Locke can also be credited for promoting public collections of items, which are today called museums, zoos, and encyclopedias. Because he believed that sensory experiences gave rise to complex ideas, he encouraged collections that would provide experiential learning.

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Locus Coeruleus

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Definition

►Locus Coeruleus: The Locus Coeruleus is a cluster of neurons in an area of the hindbrain known as the Pons that contains over half of the norepinephrine-based neurons of the central nervous system.

Description

The Hindbrain represents the lowest and most posterior division of the human brain. The Pons is a structure within the Hindbrain, that in addition to its' link with motor and sensory action, houses the Locus Coeruleus, which lies just beneath the fourth ventricle. The Locus Coeruleus is a grouping of neurons that contains over half of the Norepinephrine neurons in the Central Nervous System [3]. Norepinephrine is an essential neurotransmitter of the Central nervous System that plays a vital role in regulating sleep-wake cycles, memory, attention, hormones through its influence on the Hypothalamus, Cerebral blood flow, and motor behavior [4]. One of the catecholaminergic neurotransmitters [2], norepinephrine's influence can be either inhibitory or excitatory [1]. In addition, Norepinephine is commonly indicted with Serotonin in the manifestation of depressive and anxiety disorders as it plays a vital role in the regulation of mood. The holistic impact Norepinephrine has on the CNS is directly related to the widespread ascending noradrenergic projections from the Locus Coeruleus and rostral tegmental area to aspects of the Forebrain, Cerebellum and Spinal Cord [1], that thus correspond with Norepinephrine's influence on the broad aforementioned functions.

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Locus of Control (External and Internal)

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Synonyms

Locus of control reinforcement

Definition

The internal-external locus of control construct ([8]), describes the extent to which one perceives there to be a causal connection between one's behavior or cognition and subsequent outcomes.

Description

The concept of locus of control was developed by ►Julian Rotter in the 1960s. In looking to bridge two different branches of psychology (behavioral and cognitive), he believed that behavior was greatly influenced by rewards and punishments, and these rewards and punishments shaped how people understand the results of their own actions. Rotter ordered people on a continuum according to how much they attribute the cause of events in their lives to their own actions, motivations, or competencies (internal control) versus how much they assume the cause of these events to be determined by other forces such as luck, chance, or powerful others (external control). Based on Rotter's conception of locus of control, Nowicki and Strickland [4] developed the Locus of Control Scale for Children, which is still in use today.

An important aspect of locus of control has to do with the concept of expectancy, which is related to events that will happen in the future. Locus of control is grounded in expectancy-value theory, which describes human behavior as determined by the perceived likelihood of an event or outcome occurring contingent upon the behavior in question, and the value placed on that event or outcome. More specifically, expectancy-value theory states that if (a) someone values a particular outcome and (b) that person believes that taking a particular action will produce that outcome, then (c) they are more likely to take that particular action.

An alternative conception of locus of control was proposed by Levenson [3]. Instead of conceiving locus of control along a one-dimensional continuum (internal to external), Levenson proposed three independent dimensions: Internality, Chance, and Powerful Others. According to Levenson's view of locus of control, a person can choose each of these dimensions of locus of control independently as well as together. For example, a person might simultaneously believe that both oneself and powerful others influence outcomes, but that chance does not. Researchers in ►health psychology have embraced Levinson's conceptualization, and Wallston, Wallston & Devillis [10] developed the Multidimensional Health Locus of Control Scales to evaluate how locus of control relates to health and illness.

Relevance to Childhood Development

The variable of locus of control is of significant influence on child behavior and development.

Research completed in academic contexts ([2]) found that a belief in destiny was a major determinant in school achievement. In short, internal students feel outcomes (both negative and positive) are derived from a basis of empowerment, whereas external students view such outcomes from a basis of disengagement.

Other research ([6]; [9]; [1]) revealed that an external locus of control was associated with increasing tendencies for lower levels of academic achievement, negatively associated with performance in areas of reading, mathematics, and teachers ratings of study habits, and reading attitudes and aptitudes, while internality was found to be a positive factor in predicting academic performance, particularly with regard to attitudes about the reading experience.

Locus of control has also been shown to be associated with other psychological characteristics and perceptions. Nunn [5] found significant relationships between an internal locus of control and positive perceptions of adjustment within the home, school, and peer relations., and Nunn & Nunn [7] have also shown that students who are considered at-risk for educational failure have developed more external views of themselves, are more anxious, have lower self-esteem, and exhibit more symptoms of depression than students who are successful. Tesiny et al. [9] also found that external locus of control was significantly associated with both depression scores and academic achievement measures, e.g., reading, math, teacher rating of study habits, and peer nominations of children who exhibited symptoms of depression.

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Locus of Control Reinforcement

►Locus of Control (External and Internal)

Logagraphia

►Spelling Disabilities

Logical Reasoning

►Critical Thinking

Logical-Mathematical Intelligence

►Gardner's Theory of Multiple Intelligences

Lone/Single Parent/Caregiver Families

►Single Parent Families

Longitudinal Methods

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Definition

The term longitudinal methods represent a research design in which participants are repeatedly assessed over an extended period with repeated evaluations which are often spread across at least several years.

Description

It is quite common to distinguish between two types of longitudinal designs: the panel study and the cohort study.

Panel Study

In the Panel Study a sample, often a national representative sample is evaluated at different points in time [6]. Studies utilizing this approach can potentially reveal behavioral patterns and attitudes that could not be addressed by other designs. Depending on the aim of the study the participants could be evaluated on the assessments on a regular basis (i.e., continuous panel) or on certain assessments during predetermined intervals (i.e., interval panel). This approach allows the utilization of sophisticated statistical analyses that may potentially determine causal influences over time and therefore offers unique information for the investigation of the developmental aspect of a phenomenon. For instance, is parental stress implicated in the child's development? Is parental psychopathology implicated in the child's psychopathology? How does it develop? Does anxiety symptomatology precede depressive symptomatology or vice versa? What is the developmental course? An illustration of a panel study is the British Household Panel Study (BHPS) which started in 1991 [8]. The wave 1 panel consisted of a national representative sample of 10, 300 participants in 5, 500 households drawn from 250 areas of Great Britain. Assessments are carried out in an annual basis annually

across six main areas of interest: health, household organization, labor market behavior, income and wealth, housing and socioeconomic values. The resulting data base is a key data resource for social science researchers.

Cohort Study

In a cohort study a sample of at least one cohort (sometimes the entire cohort) is evaluated across at least two points in time [6]. For research purposes, a cohort consists of individuals who share a significant life event or a characteristic within a given time period. This characteristic could be of varied nature. For instance, being born in 1940–1945, having a certain disease, having a certain education, and having a certain employment status and so on. Cohort studies are often a useful alternative to randomized control studies in which ethical concerns are applicable. For example a randomized control study for the investigation of the impact of inept parental discipline practices on the child's development and well being would be unethical. Consequently an ethical alternative would be to identify parents who generate incompetent practices and follow them across time to determine whether inept parental practices are implicated in the child's psychopathology. A classic illustration of a cohort study is the National Child Development Study (NCDS) which was initially motivated by the concern for perinatal mortality [9]. The NCDS follows all children born in Great Britain between 3 and 9 March 1958 (about 17,000 participants) and monitors their physical, educational and social development. The study aims to improve understanding of the factors affecting human development over the whole lifespan and it is a popular database for social science research.

Advantages

The significant advantage of the longitudinal methods lies upon their unique ability to trace developmental trajectories [2, 3]. Given that each individual has his/her unique genetic makeup the longitudinal design allows intra-individual variability to be minimized.

Drawbacks

A significant drawback of longitudinal methods is the problem of attrition or loss of participants across time due to factors such as decision of participants to withdraw, unexpected life events such as death, movement and so on [7]. The problem with attrition lies in the possibility that the individuals who withdraw from the study may vary in a systematic way from those who remain in the study, making the generalisability of the results hard to make. For instance in the USA those individuals that are more likely to move from place to place, are at the same time those individuals who derive from lower socio-economic status. Menard [1] refers to a study of adolescent drug abuse in the USA in which 55% of participants withdrew from the study making the results difficult to interpret. Of course attrition rates do not typically reach as high as 55%, but when the attrition is high caution should be exercised in the interpretation of the results.

A further problem inherent in the longitudinal design is that a panel conditioning effect is plausible [3–5]. In other words, the possibility that ongoing participation in a longitudinal study could itself potentially affect how participants behave. Menard [1] cites a study of caregiving in families and reports that 52% of the participants reported that their participation in the study drove them toward providing different care for the family.

A third problem inherent in the longitudinal methods is the significant financial cost coupled sometimes with poor planning of the design which often results in large data pools without valuable research output.

Finally a further shortcoming inherent in the longitudinal methods are the normative and nonnormative changes that occur in society across a given time threshold that are always different to the conditions of another time point in history [3–5]. For instance individuals born in 1940 and followed for 20 years had different historical conditions to those born in 1990 and again followed for 20 years. It is not only the individual that changes, the world itself changes as well. For example, if the results of a longitudinal design found that individuals born between 1990–1995 reported different opinions about energy conservation in the first wave of data collection, that occurred in 2000, in relation to the fourth wave of data collection, that occurred in 2009; Does this indicate a developmental change of these individuals or a change in the world? Consequently in interpretations of the findings of longitudinal designs historical conditions need to be taken into consideration.

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Longitudinal Research

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Definition

Longitudinal research refers to the analysis of data collected at multiple points in time.

Description

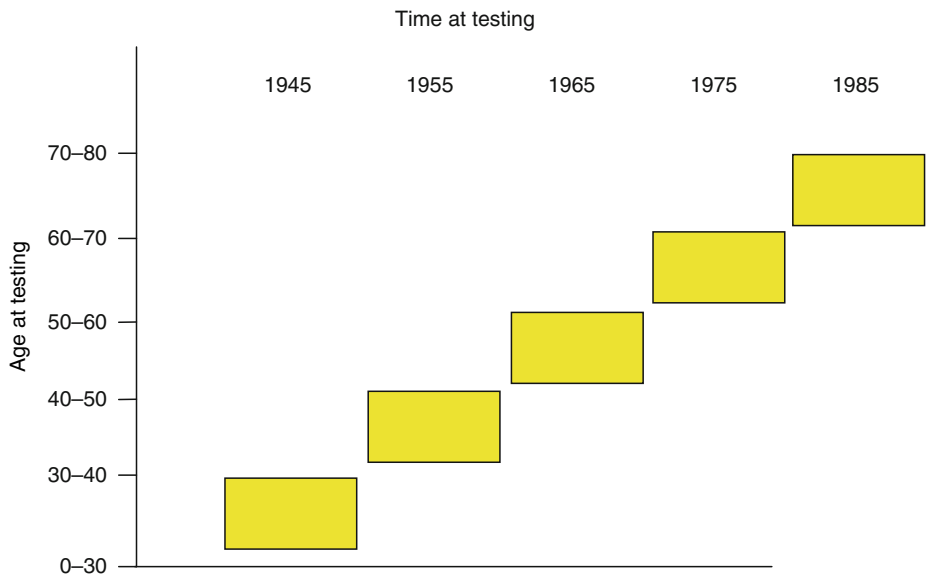
Longitudinal Design

Using this longitudinal research it is possible to examine changes over time. As shown by the yellow squares in Fig. 1, in research that uses a longitudinal design a single group of participants is followed and assessed at multiple points of time. For example, to examine the effects of poor nutrition in early life on aging, data could be collected from a group of young poorly nourished individuals who could then be followed over time. In this example, one of the advantages of using a longitudinal design would be that it would enable the researchers to identify what changes were due to aging compared to those that are due to other factors such as the habits of the individual i.e., smoking.

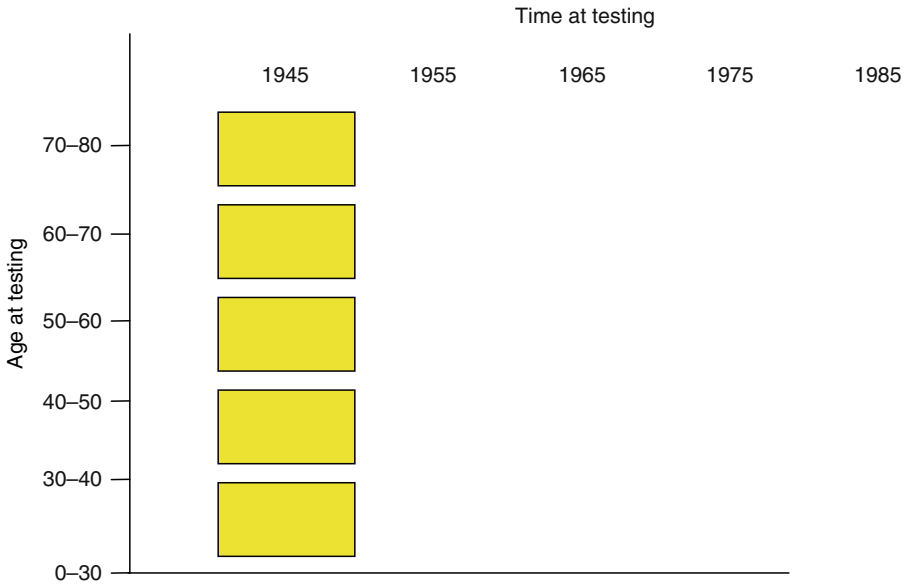
An example of one well known study which uses is longitudinal design is the Baltimore Longitudinal study which was initiated in 1958 and has examined a number of issues related to aging (e.g., [1]). The Baltimore Longitudinal study has over 1,400 volunteers (age between 20–90 years). The aim of this study is to examine what happens as people age.

Cross-Sectional Design

By comparison, in cross-sectional design information from different subgroups is collected a single point in time (see Fig. 2). A major disadvantage of a cross-sectional design which collects data at a single point in time is that any findings may be compromised by cohort effects. Cohort effects refer to findings that are due to factors e.g., education, religion, or cultural expectations.



Longitudinal Research. Fig. 1 Shows how a longitudinal design can be used to examine the effects of aging. The participants in this design were first assessed between 0–30 years of age. The same individuals were assessed on five separate occasions, the final assessment taking place when they were between 70–80 years of age.



Longitudinal Research. Fig. 2 Shows how a cross-sectional design can be used to examine the effects of aging. In the design depicted above sub-groups of participants between 0–80 were evaluated at one point in time (1945).

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Long-Term Effects of Divorce

►Sleeper Effect of Divorce

Long-Term Memory

►Autobiographical Memory
►Declarative Memory

Long-Term Potentiation

Definition

In neuroscience, long-term potentiation refers to a long-lasting change in synapse transmission that results from the simultaneous activation of two neurons. The result is enhanced synaptic transmission, or the improvement in the ability of two neurons to communicate with one-another across a synapse.

Description

Long-term potentiation is an example of synaptic plasticity; the ability of the connection, or synapse, between two neurons to change in strength. It may help explain how short-term memories are encoded into long-term memory, as well how some types of human and animal learning occur. Evidence for its role in learning has been found in humans where long-term potentiation has been demonstrated to be characteristic of the cells in the neocortex and hippocampus.

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Loss of Ego Boundaries

►Childhood Psychosis

Loss of Privileges

►Response Cost

Loss of Reinforcement

►Response Cost

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Life Dates
(1927–Present)

Introduction
Dr. Lovaas is an internationally-renowned and influential clinical psychologist who has devoted the last forty years in establishing, implementing and evaluating programs to help children with autism develop essential life skills to improve the quality of life.

Educational Information
Originally from Norway, Dr. Lovaas came to the United States to advance his knowledge and research at the University of Washington, where he received his doctorate of philosophy. Dr. Lovaas' focus of study was the environment and how it affects behavior and in the early 1950s began working with children with autism. His approach autism was influenced by Dr. Skinner and used the underlying concept of behaviorism, also known applied behavior analysis (ABA). Using the ABA method, Dr. Lovaas has demonstrated, through consistent and dedicated work, ABA is a valuable and effective tool in assisting children with autism as well as children with other psychological conditions.

Accomplishments
Early in his career Dr. Lovaas founded the Lovaas Institute for Early Intervention (LIFE) and took a professorship at the Unicles (UCLA). LIFE is internationally recognized organization for its success in working with children with autism.

Contributions
Through his work, Dr. Lovaas developed a model known as the Lovaas Model of ABA. The Lovaas Model utilizes the principles of ABA, however, he expands beyond the classic ABA model by considering the time of implementation relative to a child's unique needs.

Current Involvement
Currently, Dr. Lovaas is a Professor Emeritus of Psychology and continues to teach at the University of California at Los Angeles (UCLA). In addition, Dr. Lovaas has authored more than 70 publications throughout his career and is the author of two books, *Teaching Developmentally Disabled Children*: *The Me Book* in 1981 and, in 2002, wrote, *Teaching Individuals With Developmental Delays: Basic Intervention Technique.*

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Low Birth Weight

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Synonyms
LBW

Definition
Low birth weight (LBW) is defined as a birth weight of 2,500 g or less in a liveborn infant. The LBW infants further subdivided into two groups: very low birth weight (VLBW) infants, who are born with birth weight equal or below 1,500 g, and extremely low birth weight (ELBW) infants, who are born weighting 1,000 g or less [1, 3]. LBW indicates an increased risk of mortality and morbidity.

Description
Infants with LBW belong to two general categories: infants who have LBW due to premature birth, and infants with

intrauterine growth restriction (low for gestational age), which is typically related to problems with *placenta*, maternal health, or to *birth defects*. To differentiate premature LBW from mature growth-retarded LBW several types of data are necessary and include obstetrical history, newborn physical examination, and examination for maturational age. In general, the LBW infants are four times likely than infants born with normal weight to die in their first month of life. These who survive are two to three times more likely to suffer from short and long-term disabilities [2–4].

The percentage of all newborns born with low weight in the United States is around 7%. However, percentage of the LBW infants is higher in minority groups, particularly African-Americans, and the percentage of the African-American babies born with LBW is more than double of that for the Caucasian-American newborns [1, 3].

Risk factors for LBW are largely preventable. They include poor maternal nutrition, adolescent pregnancy, use of alcohol and drugs, premature births, smoking, multiple births, and sexually transmitted diseases. The use of assisted reproductive technology additionally accounts for a disproportionate number of LBW and VLBW infants in the United States, which is partially due to increases in multiple gestations and higher rates of LBW among singleton infants conceived with this technology.

Relevance to Childhood Development

Children born with LBW are at high risk of several types of neonatal complications. Generally, the lower the weight of infants, the greater the risk for complications. Clinical problems most commonly associated with LBW are *hypothermia*; *hypoglycemia*; *aphnea*; *metabolic acidosis*; *hypoglycemia*; *perinatal asphyxia*; respiratory problems, particularly the *Respiratory Distress Syndrome* and *aphnea of prematurely*; fluid and electrolyte imbalances, which increases risk of *dehydration*, *fluid overload*, *hypernatremia*, *hyponatremia*, *hyperkalemia*, *hypocalcemia*, and *hypermagnedemia*; *hyperbilirubinemia*; *anemia*; impaired nutrition; infections; and *sudden infant death syndrome* [1, 3, 4].

Additional long-term problems related to LWB include chronic neurological problems such as *intraventricular hemorrage*, *periventricular leukomalacia*, and increased risks for *cerebral palsy*; *developmental delay*; ophthalmologic complications; hearing deficits; lung disease; adult-onset *diabetes*; *coronary heart disease*; high blood pressure; intellectual problems; sensory disabilities; physical disabilities; and psychological and emotional distress [2, 5].

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Low Social Status Children

►Rejected Children

Low Socio-Economic Status

►Inner City Poverty

Low-Accepted Children

►Rejected Children

Ludes

►Depressants

Luria, Alexander Romanovich

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Life Dates

(1902–1977)

Introduction

Alexander Romanovich Luria (1902–1977) is a world-renowned Russian psychologist/scientist who is best known for his theories about localization and cerebral organization of mental functions. Luria's impact on the Western scientific community continues to be significant three decades after his death. Luria has left an enduring legacy that is widely respected in the scientific community [2]. Although he is often referred to as the father of neuropsychology, this interest developed much later in his professional career. Luria has been widely celebrated and honored outside of the Soviet Union, yet his contributions have not been fully recognized by his native country of Russia [3].

Luria was born in Kazan, Russia in 1902. He died in Moscow of heart failure in 1977. In 1933, Luria married Lana Linchina, also a scientist, and together they had one daughter, Elena Alexandrovna Luria, herself a distinguished microbiologist.

Luria is highly regarded in the field of neuropsychology. Despite extraordinary advances in the field of neuroscience, his contributions have been so significant that, according to Tupper [11], he is the most cited soviet scholar in North American literature. Due to this distinction, he is sometimes regarded as the father of neuropsychology.

Luria is described by his student, friend and colleague, Goldberg [2] as a "complex man living in a complex time." A.R. Luria came from a well-educated family. His father and mother were both well-respected physicians. His father taught at the Kazan Medical School. Luria identifies his family as being part of the Russian "intelligentsia." Luria was greatly impacted by the tumultuous times of pre-revolution Russia and the subsequent chaotic post-revolution cultural shift on Russian society. Luria identifies that the revolution freed the younger generation, regardless of social standing, to explore and discuss new philosophies and social systems. However, Luria indicates that despite the openness to these new opportunities, it was not necessarily conducive to "highly organized scientific inquiry." Luria's expansive and shifting intellectual pursuits and interests are considered to be a result of the social and political culture in which he lived [8].

Despite the challenges that confronted him, Luria is considered one of the most influential Soviet scientists of his time. His collaboration with Lev Vygotsky led to extensive and enduring contributions that are recognized throughout the world. Luria is best known for his contributions in developing a comprehensive theory of brain functioning, which remains as the cornerstone for brain-behavior research. His influence in the field of neuropsychology continues to be foundational for many academic programs of study. He is frequently cited in neuropsychology literature, and is best known for his conceptualization of brain organization. However, during the course of his career, his interest went well beyond the more narrow recognition of neuropsychology, and included such areas as child development, educational and rehabilitative interventions, instructional methods, mental retardation, and linguistic phenomena such as aphasia [3, 11].

Educational Information

Luria's education started within the tumultuous political backdrop of the Russian Revolution. From 1912 to 1918 he attended the gymnasium, a secondary school, preparing him for university studies. He completed his secondary studies at the age of 16, at which time he received his diploma. In 1918 he entered Kazan University and pursued studies in the Social Sciences. He describes his studies at Kazan University as being chaotic. He became absorbed with questions concerning man's role in shaping society. In 1921 he completed his studies in the Social Sciences and continued his studies in the Medical Department of Kazan University. In addition, he pursued his interest in psychology and concurrently enrolled at the Pedagogical Institute, as well as the Kazan Psychiatric Hospital. Luria was influenced by such notable scholars as Sigmund Freud, Alfred Adler, Jung, and Pavlov. His interest in psychoanalytic research led to the formation of the Kazan Psychoanalytic Association. He later joined the staff of the Moscow Institute of Psychology. His work with Vygotsky, which started in 1924, clearly shaped and greatly influenced his life's work. His regard for Vygotsky as a genius is well documented. Weekly collaborations with Vygotsky, Leontiev and Luria led to the development of research questions in cognitive psychology, such as perception, memory, attention, speech, problem solving, and motor activity. These weekly meetings, known as the "troika," laid to the foundation for a new comprehensive approach to human psychology, which would incorporate the notion that, as higher processes take shape, the entire structure of behavior is changed [8, 10].

The late 1930s are considered to be a critical turning point in Luria's career [2]. At this time Luria added a medical degree to his full professorship, became more involved with the biological aspects of psychology, which led to his contributions in neuropsychology. Luria's interest in cognitive, cultural, and developmental research most certainly influenced his approach to neuropsychology.

Luria returned to Moscow in 1934. At that time, he worked in the Moscow Medical Genetic Institute as head of the Laboratory of Psychology. He also headed the Laboratory of Pathopsychology in the All-Union Institute of Experimental Medicine. His research focus at the Moscow Medical Genetic Institute was on twins, where he studied the role of heredity and external factors in the development of mental processes.

World War II was particularly devastating on the citizenry of the Soviet Union. Luria was commissioned to organize a rehabilitation hospital to treat soldiers with brain and peripheral nerve injuries. The task of the hospital had two primary goals: Devise methods of diagnosing local brain lesions and of recognizing and treating complications such as inflammation and secondary infection that were caused by wounds. Second, he was to develop rational, scientifically-based techniques for the rehabilitation of destroyed functions. The extensive and dedicated effort by Luria and his staff led to the development of his theories of brain function and methods for the remediation of focal brain lesions. It was during this time that he developed the systematic approach to the brain and cognition, which has come to be known as the discipline of neuropsychology. Following the war, Luria continued his research activities in neuropsychology.

Contributions

David E. Tupper, in an article discussing Luria's influence on worldwide neuropsychology, discussed Luria's contributions. Basically, according to Tupper, Luria has provided contributions in at least five major areas. These areas include:

Cultural-historical Development of Higher Psychological Functions; Functional Units of the Brain; Qualitative Analysis of Neurodynamic Factors; Syndrome Analysis; Systemic Localization of Brain Function, and Verbal Regulation of Behavior [11].

Cultural Historical

Luria and Vygotsky's lifespan overlapped 32 years. Vygotsky began his research on issues in education, and focused on the education of handicapped and retarded individuals. He believed in the interaction between the mind (internalized modes of behavior) and the environment. One of Vygotsky's major theories is titled the *zone of proximal development*, which discusses the difference between what a student can actually do without help and what he/she can do with help. This model was developed by Vygotsky to argue against the use of standardized tests to gauge students' intelligence. He believed that when exploring what the child knows to determine intellectual ability, it is more beneficial to explore the student's ability to solve problems independently. Through his efforts, Vygotsky became a major figure in Luria's life from the beginning of their interactions. Luria's writings and scientific research were slowly influenced by Vygotsky. Luria based his concepts of higher order psychological functions on the theories of Vygotsky. Luria further expanded on Vygotsky's model, using qualitative analysis to help both in depth and breadth, in order to further explain higher order thinking that has impacted the fields of neurology, psychology, and neuropsychology [1, 10].

Functional Units of the Brain

Luria's most enduring contribution to the field of neuropsychology is his theory on the functional organization of the brain. According to Luria, the brain is made up of three main blocks or functional units incorporating basic functions. Luria conceptualized the cortex as working in the following way: Sensory input enters the primary sensory zones, is elaborated in the secondary zones, and is integrated in the tertiary zones of the sensory, or posterior, unit. Luria (1974, p. 43) also proposed that each of these units is "hierarchical" in structure and consists of at least three cortical zones built one above the other. A primary "projection" area receives impulses. A secondary "projection-association" area processes incoming information and programs information for projection to efferent pathways. The tertiary "zones of overlapping" area is last to develop and is responsible for complex forms of mental activity, which requires the integrated participation of many cortical structures. According to Luria, these units and zones, when functioning properly, work together to regulate all of our behaviors, from waking and sleeping, to hearing and seeing, and thinking and problem solving [4, 5].

Syndrome Analysis

One way that Luria assisted in the diagnosis and treatment of patients was his ability to use syndrome analysis (see Luria, 1980, pp. 392.). He was among the first neuropsychologist to clearly state that no simple, unequivocal relation between symptom and localization can be proved. There is, as a rule, no specific way to determine which areas of the cortex could be affected on the basis of a neuropsychological symptom, such as specific disturbances of gnosis or praxis (Online Book).

> If mental activity is a complex functional system, involving the participation of a group of concertedly working areas of the cortex. . .a lesion of each of these zones or areas may lead to disintegration of the entire functional system, and in this way the symptom or "loss" of a particular function tells us nothing about its "localization." (Luria, 1972, p.35)

Understanding neurodynamic factors that may precipitate a patient's signs and symptoms is facilitated by Luria's concept of syndrome analysis and qualitative analysis. These applications to clinical thinking provide for a discussion regarding "neurodynamic change." Currently, this process, with regard to the practice of neuropsychology in North America, is used in concert with a more quantitative approach to understanding brain behavior relationships.

Systematic Localization of Brain Function

Luria structured the neuropsychological assessment of brain functioning on the basis of a systemic way of thinking. Two questions guide this approach as presented by (Online Book):

1. Which processes are involved in the cognitive functions in consideration?
2. What cerebral structures support the functional system and constitute the neuronal basis for the function in consideration?

The relationship between symptom and localization can be very complex. A symptom can result from lesions in both the anterior and posterior cortical areas of the brain [7]. A circumscribed cortical lesion can simultaneously affect many functional systems and, as a result, lead to various manifestations of symptoms. In summary, this concept of complex brain behavior relationships is essential to understand for practitioners and researchers exploring neuropsychological problems and correlating these problems to brain function.

Summary

It is important to understand the theoretical and methodological differences between a qualitative approach to understanding brain function as proposed by Luria, and the North American approach, which is more quantitative, to understanding brain behavior relationships. Luria based his theories on clinical experience, and his research focused on attempts to develop a theory of neuropsychological functioning based on analyzing and synthesizing information into a meta-theory. Luria often based this process on Vygotsky's earlier work and theories. In contrast, in North America neuropsychology has been derived from a more psychometric or quantitative approach to understanding brain behavior relationships. Standardized tests are the norm in terms of understanding brain behavior relationships in clinical populations. Despite his disregard for methodological considerations such as standardization, quantification, validation and reliability, several standardized tests have been or are being developed that incorporate both the qualitative approach supported by Luria and the quantitative information that has been historically used in North America [2, 9].

Publications

Much of Luria's work has yet to be translated from Russian to English. The following is a partial list of books that have been translated into English.

Ape Primitive Man and Child: Essays in the History of Behavior (1992)
Cognitive Development: Its Cultural and Social Foundations (1976)
The Making of Mind: A Personal Account of Soviet Psychology (1979)
Higher Cortical Functions in Man (1980)
The Man With a Shattered World: The History of a Brain Wound (1987)
The Mind of a Mnemonist: A Little Book About a Vast Memory (1987)
The Human Brain and Psychological Processes (1966)
Nature of Human Conflicts (1981)
The Neuropsychology of Memory (1976)
Traumatic Aphasia: Its Syndromes, Psychology and Treatment (1970)
Working Brain: An Introduction to Neuropsychology (1973)

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Lustprinzip (German)

►Pleasure Principle

Lying

►Dishonesty

M

Magazines

►Media

Magnetic Resonance Imaging

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Synonyms

Nuclear magnetic resonance imaging (NMRI)

Definition

Magnetic resonance imaging (MRI) is a medical imaging technique that uses high-strength magnetic fields and pulses of radio wave energy to investigate internal structures and functions of the body.

Description

The MRI scanner contains a magnet that forces hydrogen atoms in the body to align, which produces recordable, measurable images. These images are called slices, and are used to diagnose abnormal structures or functioning within the body. The quality of MRI is often superior to x-ray, computerized tomography (CT), or ultrasound, in providing cardiovascular, musculoskeletal, neurological, and oncological imaging.

Important in neuropsychology, MRI is useful in detecting problems of the nervous system such as dementia, Alzheimer's disease, tumors, aneurysm, nerve injury, herniated discs, and neurological damage caused by stroke.

Unlike x-ray and CT, MRI does not use radiation or have any known carcinogenic effects. Though generally safe, caution is given with the powerful magnetism of MRI, which could affect pacemakers, artificial limbs, and other medical devices.

Relevance to Childhood Development

As previously indicated, serious and long-lasting health concerns have not been reported with MRI. Similarly, there are no known risks uniquely to children. However, because it is essential for children to keep still during the procedure in order to attain clear imaging, mild sedatives are commonly administered.

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Magnetic Resonance Imaging (MRI)

Synonyms

Nuclear magnetic resonance imaging (NMRI); Magnetic resonance tomography (MRT)

Definition

Magnetic resonance imaging is a form of medical imaging that measures the response of the atomic nuclei of body tissues to high-frequency radio waves when placed in a strong magnetic field, and that produces images of the internal organs.

Description

Magnetic resonance imaging is a medical imaging technique most commonly used in radiology to visualize detailed internal structure and limited function of the body. In many cases MRI gives different information about structures in the body that can be see with an X-ray, ultrasound, or computed tomography (CT) scan.

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

MRI also may show problems that cannot be seen with other imaging methods. Magnetic resonance imaging provides much greater contrast between the different soft tissues of the body than computed tomography (CT) does, making it especially useful in neurological (brain), musculoskeletal, cardiovascular, and oncological (cancer) imaging. MRI uses a powerful field to align the nuclear magnetization of hydrogen atoms in water in the body. Radio frequency fields are used to systematically alter the alignment of this magnetization, causing the hydrogen nuclei to produce a rotating magnetic field detectable by the scanner. This signal can be manipulated by additional magnetic field to build up enough information to construct an image of the body.

Magnetic resonance imaging is a relatively new technology with the first image being published in 1973. The first studies performed on humans were published in 1977. Magnetic resonance imaging was developed from knowledge gained in the study of nuclear magnetic resonance. In its early years the technique was referred to as nuclear magnetic resonance imaging (NMRI). However, because the word *nuclear* was associated in the public mind with ionizing radiation exposure, it is now generally referred to simply as MRI. However, scientists still use the term NMRI when discussing non-medical devices operating on the same principles.

MRI contains no ionizing radiation. To date, there have been no documented significant side effects of the magnetic fields and radio waves used on the human body. Depending on the area being studied, a patient may be asked to not eat or drink anything for 4-6 hours. Other preparations are usually not needed. The strong magnetic fields created during an MRI can interfere with certain implants, particularly pacemakers and cochlear implants. Persons with cardiac pacemakers cannot have an MRI and should not enter an MRI area. Brain aneurysm clips, certain artificial heart valves, and artificial joint or older types of vascular stents may prevent patients from having an MRI. Since the MRI contains a magnet, all metal-containing objects such as watches, jewelry, credit cards, hairpins, etc., are not allowed into the scanner area and can be dangerous if overlooked.

Magnetic Resonance Tomography (MRT)

►Magnetic Resonance Imaging (MRI)

Mainstreaming

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Synonyms

Full inclusion; Inclusion; Inclusive education; Integration

Definition

Mainstreaming is most generally defined as the practice of educating students with disabilities in age-appropriate general education classes including specialized instruction [10, 12] without regard to the severity of the child's disability [13].

Description

In schools today there has been a shift in having children with disabilities participate in a natural setting with their typical peers [3, 11]. This practice is known in the educational setting as mainstreaming. According to a report from the United States Department of Education [6], 95% of students with disabilities are enrolled in a traditional school, with 52% included in the general education curriculum.

The decision to use mainstreaming is dependent on the individual child's needs and level of functioning and therefore it is not effective with all students with disabilities (NASP). Several other important factors must be considered before placing a student with a disability in an inclusive environment [8]. These factors include family goals, professional advice, willingness and level of experience of the school staff, and adaptability of the curriculum [1].

Once the decision has been made to place a child into an inclusive environment, modifications to the general education curriculum may be necessary to help support the educational needs of the student with a disability. According to the National Association of School Psychologists (1993), there are a variety of steps to consider in order for mainstreaming to be successful. The first important element is to identify the individual student's approach to learning as well as their strengths. The next factor is to evaluate the learning environment to determine if there are things that would hinder the academic success of the child (i.e., seating, lighting, noise). An additional step in this process is to consider the student's educational goals and incorporate them into the curriculum when appropriate. A final component of including a child through adaptation of the curriculum is to modify

the instruction in various ways including teaching style, subject content, and assistive materials.

Relevance to Childhood Development

Varying Standpoints of Inclusion or Opposing View of Inclusion

Since the start of the practice of inclusion in the early 1990s [7], various studies have examined the outcomes of students with disabilities placed in general education and have found positive results (e.g., [5, 13]). However, the use of inclusion has become a highly controversial educational issue with a mixed amount of support and opposition [10].

The Criticisms of Inclusion. The individuals that oppose the inclusion of children with disabilities in general education feel strongly about maintaining separate provisions within the schools [7]. It is argued that this separation between general education and special education must be preserved in order to continue to increase the academic standards within the schools (Farrell). This group believes that a child with a disability will have more educational success if they are placed in special education classrooms because of the more intensive and specialized instruction as compared to a general education classroom [4]. Additionally, it is claimed that in a school system that evaluates children on the basis of academic ability, it seems conflicting to have a classroom of students with different academic potentials placed together (Farrell). Some feel that even when children with disabilities are put into inclusive education they will continue to be segregated among the nondisabled students because of the differences in abilities within the classroom and will consequently not be included in the education with others [9]. In light of the criticisms of the use of inclusion in schools, others hold a positive viewpoint of this approach and the research bolsters these optimistic claims.

The Benefits of Inclusion. The empirical findings have shown many encouraging outcomes for students with disabilities who would otherwise be placed in special education classrooms. For example, in a 2-year longitudinal study Cole and Meyer [4] compared children with a variety of developmental disabilities in segregated and inclusive classrooms. They found that the educational skills of both groups did not differ, however, the social competence of the children in the fully inclusive classroom exceeded those of the segregated students. Other studies have revealed that inclusion has led to positive influences in the development of important and meaningful relationships that otherwise may have ceased to occur, including increased acceptance of others, higher expectations, a greater potential to become independent, improved social competence, and higher amounts of social support [2, 9]. Additionally, findings suggest that the potential to improve academic and social skills is facilitated with the nondisabled peers acting as role models and positively influencing his or her disabled counterpart [14]. Furthermore, it has been found that inclusion benefits children with disabilities in conjunction with the typical children in the classroom by encouraging a greater sense of awareness and understanding of others with disabilities [13]. In order to ensure that combining students with disabilities with their typical peers is a positive experience, it is important to explain to the typical peers about others with disabilities and encourage these students to ask questions regarding this topic [11]. As an effect of the positive impact of inclusion on the progress and the ultimate well-being of students with disabilities several influential associations contend that inclusive education is an important system [7] and thus seems to be a valuable component to continue pursuing in the school setting.

Conclusion

On the whole, the practice of mainstreaming is leading an important path to improve the educational opportunities of many students with disabilities. In order for this practice to be successful, the classroom environment must be individualized to tailor the needs for each student. Although there are differing opinions on the use inclusion and its benefits, hopefully in the years to come it will continue to develop within the educational setting and provide various advantages for all children with disabilities.

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Major Depression

►Unipolar Depression

Major Depressive Disorder or Clinical Depression

►Unipolar Depression

Major Tranquilizer

►Thorazine®

Make-Believe Play

►Fantasy Play

Malabsorption

►Malnutrition

Maladaptive Self-Reflection

►Negative Academic Self-Evaluation

Male Bonding

►Bonding

Male Gamete

►Sperm

Male Germ Cell

►Sperm

Malnourishment

►Anorexia Nervosa

Malnutrition

Synonyms

Failure to thrive syndrome; Hunger; Malabsorption

Definition

Malnutrition occurs when your body does not get enough nutrients. The condition may result from an inadequate

or unbalanced diet, digestive difficulties, absorption problems, or other medical conditions.

Malnutrition can occur because of the lack of a single vitamin in the diet, or it can be because a person isn't getting enough food. Starvation is a form of malnutrition. Malnutrition also occurs when adequate nutrients are consumed in the diet, but one or more nutrients are not digested or absorbed properly.

Malnutrition may be mild enough to show no symptoms. However, in some cases it may be so severe that the damage done is irreversible, even though the individual survives.

Symptoms of malnutrition may include dizziness, fatigue, loss of weight and metabolic imbalances. Treating malnutrition usually involves means to replace the missing nutrients back into the body.

Worldwide, malnutrition continues to be a significant problem, especially among children who cannot fend adequately for themselves. Poverty, natural disasters, political problems, and war all contribute to conditions – even epidemics – of malnutrition and starvation, and not just in developing countries.

According to the Lancet, Malnutrition, in the form of iodine deficiency, is "the most common preventable cause of mental impairment worldwide." Even moderate iodine deficiency, especially in pregnant women and infants, lowers intelligence by 10 to 15 I.Q. points, shaving incalculable potential off a nation's development.

Manic-Depressive Illness

►Bipolar Disorder

Marriage and Family Therapist

►Child and Family Therapist

Martin-Bell Syndrome

►Fragile X Syndrome

Maslow's Hierarchy of Needs

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Definition

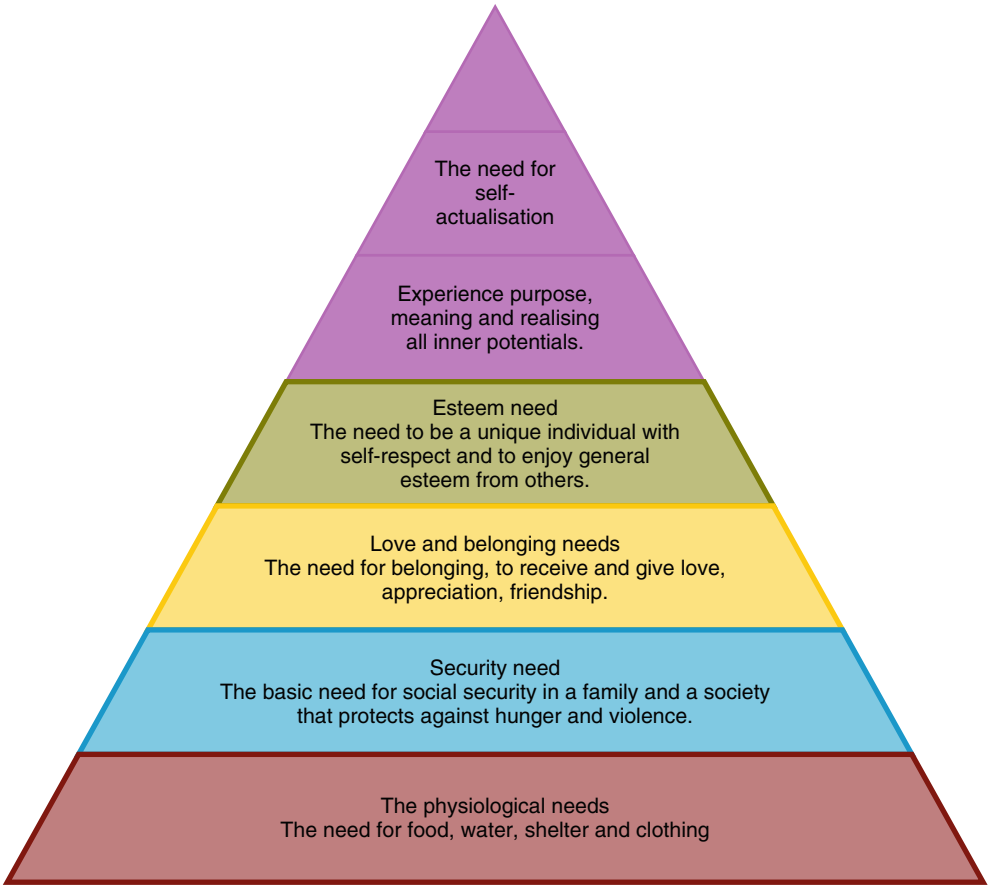
Maslow's hierarchy of needs is a theory in psychology, proposed by Abraham Maslow in his 1943 paper *A Theory of Human Motivation*, which he subsequently extended to include his observations of humans' innate curiosity [2].

Description

Abraham Maslow is a humanistic psychologist who developed a theory of personality that has influenced a number of different fields, including education. This wide influence is due in part to the high level of practicality of Maslow's theory. This theory accurately describes many realities of personal experiences.

Humanists do not believe that human beings are pushed and pulled by mechanical forces, either of stimuli and reinforcements (behaviorism) or of unconscious instinctual impulses (psychoanalysis). Humanists focus upon potentials. They believe that humans strive for an upper level of capabilities. Humans seek the frontiers of creativity, the highest reaches of consciousness and wisdom. This has been labeled "fully functioning person," "healthy personality," or as Maslow calls this level, "self-actualizing person."

Maslow has set up a hierarchic theory of needs often depicted as a pyramid consisting of five levels: the four lower levels are grouped together as being associated with physiological needs, while the top level is termed growth needs associated with psychological needs (Fig. 1). Deficiency needs must be met first. Once these are met, seeking to satisfy growth needs drives personal growth. The higher needs in this hierarchy only come into focus when the lower needs in the pyramid are satisfied. Once an individual has moved upwards to the next level, needs in the lower level will no longer be prioritized. If a lower set of needs is no longer being met, the individual will temporarily re-prioritize those needs by focusing attention on the unfulfilled needs, but will not permanently regress to the lower level. For instance, a businessman at the esteem level who is diagnosed with cancer will spend a great deal of time concentrating on his health (physiological needs), but will continue to value his work performance (esteem needs) and will likely return to work during periods of remission.



Maslow's Hierarchy of Needs. Fig. 1

Maslow's basic needs are as follows:

- Physiological needs

These are biological needs. They consist of needs for oxygen, food, water, and a relatively constant body temperature. They are the strongest needs because if a person were deprived of all needs, the physiological ones would come first in the person's search for satisfaction.

- Safety needs

When all physiological needs are satisfied and are no longer controlling thoughts and behaviors, the needs for security can become active. Adults have little awareness of their security needs except in times of emergency or periods of disorganization in the social structure (such as widespread rioting). Children often display the signs of insecurity and the need to be safe.

- Needs of love, affection and belongingness

When the needs for safety and for physiological well-being are satisfied, the next class of needs for love, affection and belongingness can emerge. Maslow states that people seek to overcome feelings of loneliness and alienation. This involves both giving and receiving love, affection and the sense of belonging.

- Needs for esteem

When the first three classes of needs are satisfied, the needs for esteem can become dominant. These involve needs for both self-esteem and for the esteem a person gets from others. Humans have a need for a stable, firmly based, high level of self-respect, and respect from others. When these needs are satisfied, the person feels self-confident and valuable as a person in the world. When these needs are frustrated, the person feels inferior, weak, helpless and worthless.

- Needs for self-actualization

When all of the foregoing needs are satisfied, then and only then are the needs for self-actualization activated. Maslow describes self-actualization as a person's need to be and do that which the person was "born to do." "A musician must make music, an artist must paint, and a poet must write." These needs make themselves felt in signs of restlessness. The person feels on edge, tense, lacking something, in short, restless. If a person is hungry, unsafe, not loved or accepted, or lacking self-esteem, it is very easy to know what the person is restless about. It is not always clear what a person wants when there is a need for self-actualization.

The hierarchic theory is often represented as a pyramid, with the larger, lower levels representing the lower needs, and the upper point representing the need for self-actualization. Maslow believes that the only reason that people would not move well in direction of self-actualization is because of hindrances placed in their way by society. He states that education is one of these hindrances. He recommends ways education can switch from its usual person-stunting tactics to person-growing approaches. Maslow states that educators should respond to the potential an individual has for growing into a self-actualizing person of his/her own kind. Ten points that educators should address are listed:

1. We should teach people to be *authentic,* to be aware of their inner selves and to hear their inner-feeling voices.
2. We should teach people to *transcend their cultural conditioning* and become world citizens.
3. We should help people *discover their vocation in life,* their calling, fate or destiny. This is especially focused on finding the right career and the right mate.
4. We should teach people that *life is precious,* that there is joy to be experienced in life, and if people are open to seeing the good and joyous in all kinds of situations, it makes life worth living.
5. We must *accept the person* as he or she is and help the person learn their inner nature. From real knowledge of aptitudes and limitations we can know what to build upon, what potentials are really there.
6. We must see that the person's *basic needs are satisfied.* This includes safety, belongingness, and esteem needs.
7. We should *refreshen consciousness,* teaching the person to appreciate beauty and the other good things in nature and in living.
8. We should teach people that *controls are good,* and complete abandon is bad. It takes control to improve the quality of life in all areas.
9. We should teach people to transcend the trifling problems and *grapple with the serious problems in life.* These include the problems of injustice, of pain, suffering, and death.
10. We must teach people to be *good choosers.* They must be given practice in making good choices.

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Mass Media

►Media

Mastery Orientation

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Synonyms

Learning goals; Task goals; Task involvement; Task orientation

Definition

Mastery orientation is defined as having the goal of learning and mastering the task according to self-set standards. Learner is focused on developing new skills, improving, and acquiring additional knowledge.

Description

Detailed in the literature are two types of goal orientations. The first is a mastery goal, where students focus

on mastery of a task and have the desire to acquire new skills. The second is a performance goal, where learners' main concern is demonstrating competence and focus on receiving favorable judgments of ability from others.

Mastery orientated students find satisfaction with the work and are not influenced by external performance indicators such as grades. Students who have mastery goals tend to engage in activities that will increase their knowledge. They pay more attention, are more likely to process information at a higher level, and are not afraid to ask for help.

Relevance to Childhood Development

Learners are likely to have both mastery and performance orientation. However, research shows a comparative prevalence of the two types of goals between learners of different age groups. Young children are typically more mastery oriented. By second grade, they begin to focus on performance. Adopting performance goals become more apparent as they move into adolescence. This shift in goal orientation may be due to both children's increasing awareness social comparison and teachers' emphases on grades and other forms of formal assessments.

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Masturbation

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Synonyms

Autoeroticism; Jacking off; Pleasuring oneself; Servicing oneself; Whacking off

Definition

Self-stimulation of the genitals to achieve sexual arousal and pleasure, generally to the point of orgasm.

Description

Masturbation is achieved via touching, stroking or massaging the penis, vagina, or clitoris until orgasm is reached. Approximately 95% of males and 89% of females masturbate on a regular basis. Masturbation is a normal, healthy activity that generally begins in adolescence, although it is not uncommon for young children to masturbate as they grow and begin to explore their bodies [2]. Masturbation can serve many purposes including relieving sexual tension, stress, and inducing a state of general relaxation [2]. Although masturbation is a normal, healthy activity when it occurs at the appropriate times and places, it becomes problematic when people choose to masturbate in public places or at such a high frequency that it disrupts other behaviors, such as going to work, completing homework assignments, and/or socializing [2].

It is very common for people with cognitive impairments and pervasive developmental disabilities to masturbate. It is estimated that as many as 60–75% of people with Autism and cognitive impairments masturbate on a regular basis [1]. It is suggested that this behavior be considered normal and to not be concerned unless it is occurring too frequently (i.e., every time the student uses the restroom) or in inappropriate places (i.e., the hallway or classroom). If these concerns arise, an intervention may need to be put into place to reduce the frequency and environment in which the behavior occurs [1].

Relevance for Childhood Development

Although masturbation among both males and females is a normal aspect of growth and development, many parents believe that it is harmful or indicates some type of psychological problem with their child. Culturally, there may be taboos against masturbation. Some use religious teachings to discourage masturbation. There is no evidence that children and adolescents who masturbate are experiencing any kind of distress because of their masturbating. The primary problems surface when the child fails to discriminate when it is appropriate to masturbate (e.g., alone in their room) and when it is not (i.e., in the living room during a large family gathering). In such cases, masturbation should not necessarily be discouraged; rather the child should be taught the appropriate time and place for masturbation.

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Mate Selection

►Sexual Relationships

Mateine

►Caffeine

Maternal

►Femininity

Maternal Alcohol Consumption

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Definition

The term "maternal alcohol consumption" refers to the adverse behavior of women who tend to use or abuse alcohol (Alcohol is defined as "a colorless volatile flammable liquid, C_2H_5OH, synthesized or obtained by fermentation of sugars and starches and widely used, either pure or denatured, as a solvent and in drugs, cleaning solutions, explosives, and intoxicating beverages" (http://www.thefreedictionary.com/alcohol).) before, during, or after the gestation of a child. Alcohol consumption may range between light to heavy/alcoholic drinking; however, there is no universal consensus as to how much quantity of alcohol denotes light, moderate, or heavy drinking/alcoholism (World Health Organization (WHO) defines alcoholism as "chronic continual drinking or periodic consumption of alcohol which is characterized by impaired control over drinking, frequent episodes of intoxication, and preoccupation with alcohol and the use of alcohol despite adverse consequences" (http://www.who.int/substance_abuse/terminology/who_lexicon/en/index.html)).

Description

During the 1970s national estimations of alcohol use and abuse in the United States indicated that about 18 million Americans were heavy consumers of alcohol, consuming about 5–6 drinks per day, every day. Within these estimations it was obvious that the majority of heavy drinkers were male, however, sex differences in the amount and frequency of alcohol consumption seemed to gradually disappear since female rates of drinking began to rise rabidly; so did the drinking rates among pregnant women [2].

More recent estimations of the phenomenon indicate that rates of alcohol use during pregnancy tend to decrease, with estimates for 2001 ranging between 15 and 20% while in 2005 the rates for using some alcohol ranged between 12 and 15% [6]. The decreasing tendency of women to reduce alcohol use during pregnancy is also documented by Grant and colleagues [13]. These researchers found that between 1989 and 2004 alcohol use during pregnancy decreased from 30 to 12% in all demographic categories [13].

Estimates for binge drinking (using >3 drinks at one occasion) showed that 3–4% of pregnant women continue to consume alcohol, despite the fact that its detrimental effects on the fetus have been established since the eighteenth century [6]. Furthermore, Grant and colleagues [13] also noted that binge drinking in the month before pregnancy increased across all demographic categories, except Native Americans, a pattern which can predict alcohol use during early gestation too.

Generally, the scientific community is most concerned with maternal alcohol consumption exhibited shortly before and during pregnancy, especially due to the teratogenic effects that such behaviors can have on the fetus. Even though it seems that the severity of deficiency on the child depends on the amount of alcohol consumed [2, 15, 26], the period of gestation during which exposure occurred [2, 15, 26], and the pattern of consumption (binge or steady) [15, 26] these difficulties may manifest themselves even when alcohol consumption occurs at the level of social drinking (1 or 2 drinks, two times weekly) [26].

Regarding the period of gestation during which exposure occurs, four mechanisms by which ethanol can affect the central nervous system (CNS) of the developing fetus

have been suggested. At the time of conception and during the first weeks of development ethanol may act cytotoxically or as a mutagenic agent and cause cell death or lethal chromosomal aberration, resulting to spontaneous abortion. During the following 4–10 weeks of gestation ethanol may cause excessive cell death in the CNS as well as abnormalities in nerve cell migration from cell damage, leading to disorganization of tissue structure and microcephaly. From the eighth to tenth weeks onwards, ethanol continues to cause disorganization or delays in cell migration and development, leading to abnormal synaptic formations [25, 26]. In the third trimester, alcohol exposure has been associated with damage in the cerebellum, hippocampus, and prefrontal cortex [25]. Additionally, ethanol can interfere with neurotransmitter production in the CNS causing neuroendocrine abnormalities and especially growth deficiencies [25, 26].

These effects are caused to the fetus mainly because ethanol can freely cross the placenta, thus the concentration of ethanol in the fetus is equal or even higher than in the maternal blood. However, ethanol remains in the amnionic fluid for a relatively longer period of time making it possible for the fetus to be exposed to it even if there is no ethanol concentration in maternal blood [26]. That is due to the fetus's decreased ability to metabolize ethanol compared to the mother [6].

Risk Factors Associated with Maternal Alcohol Consumption

Several epidemiological studies throughout the years have identified a number of risk factors that are associated with higher maternal alcohol consumption rates and the resulting alcohol related birth disorders. These factors can be collectively divided into four major categories: those that are more likely to increase the risk for heavy maternal drinking (e.g., family traits and early onset of drinking); those that could be the consequence of alcohol abuse (e.g., unemployment and premature mortality); those that are more biologically based (e.g., advanced maternal age, previous pregnancies); and those that represent behavioral patterns of the mother (e.g., smoking) or psychological difficulties (e.g., stress and depression) [22].

The National Pregnancy Risk Assessment Monitoring System, during 2000–2001, identified two different groups of women at risk [6]. The first group has 6–15% probabilities of using alcohol during pregnancy and refers to women above the age of 35, with high socioeconomic status and educational level, not being users of any other illicit drug, and being non-Hispanic, white and married. The second group has 1–3% probabilities of using alcohol during pregnancy and refers to women below the age of 30, single, smoking cigarettes, using other substances (including marijuana, cocaine and opiates), and binge drinking [6].

More recently, Grant and colleagues [13], examining the tendency for alcohol use before pregnancy, reported that women in their study who were more likely to drink in the month before pregnancy were 31–35 years old, had at least 16 years of education, and were smokers. On the other hand, women who were less likely to drink in the month before pregnancy were younger than 21 years old, had less than 12 years of education, were Asian, and had more than one child. In addition, they found that women who were more likely to binge drink in the month before pregnancy, were 21–25 years old, Native American or black race, unmarried, and smokers [13].

Related to heavy and binge drinking is the assumption that heavy and binge drinkers are also more likely to have multiple unprotected sexual encounters resulting in unexpected and unwanted pregnancies. Heavy and binge drinking women also seem to fail to recognize that they have conceived in the early stages of gestation, thus exposing the child to the detrimental effects of alcohol from very early in development without even being aware of it [13].

In all, the risk factors identified to be associated with elevated levels of maternal alcohol consumption include: advanced maternal age, having three or more children, smoking, use of other drugs, low socioeconomic status, transience and low employment, frequent binge drinking, living in a social environment which tolerates or promotes drinking [6, 22] and having personal history of physical or sexual abuse [6]. Poor nutrition, environmental deprivation, poverty and homelessness [6, 22], physical stress, obstetric complications, fetal tissue sensitivity, and genetic susceptibility are also reported as risk factors for increasing maternal alcohol consumption [26].

Relevance to Childhood Development

Concern over the deleterious effects of alcohol on the developing fetus can be traced back to the Old Testament when Judges warned women to "Beware, and drink no wine or strong drink. . . .for lo, you shall conceive and bear a son" [25, 26] and during the time of Aristotle as well, who observed that alcoholic women often bore feebleminded children [2, 29]. Similar observations have been noted several times in the literature since then, especially during the England gin epidemic of the eighteenth century (between 1720 and 1750), relating maternal alcohol consumption with high rates of fetal and neonatal mortality, low birth weight and an array of other deleterious effects [29, 33]. However, it was not until the early 1970s that the association between prenatal alcohol exposure and birth

defects became the object of serious scientific and medical interest [2] and awareness of the teratogenic effects of alcohol was raised [26].

The first scientific study regarding the potentially deleterious effects of prenatal exposure to alcohol was reported from Sullivan in 1899, who reported an increased rate of stillbirths and infant deaths in children of alcoholic mothers [26]. However, for the following decades scientists assumed that the abnormalities exhibited by children of alcoholic mothers were secondary to environmental challenges and interest in the relationship between prenatal alcohol exposure and birth defects was silenced until the early 1970s [26]. Nowadays, and despite the above mentioned vagueness, it is consensually admitted that exposing a child to alcohol while still in the uterus has aversive effects on its physical and mental development, leading to childhood growth deficiency, IQ, motor skills, attention, and school performance difficulties.

In 1972, Ulleland [32] demonstrated that a group of children born to alcoholic mothers were typically underweight at birth, had small head circumference, and exhibited delayed growth and development. Shortly after this report, in 1973, Jones and his colleagues [18, 19] identified and described in more details a pattern of anomalies in a number of children born to alcoholic mothers. Jones and colleagues were the first to recognize these malformations as a distinct clinical entity and this distinct pattern of congenital malformations of altered growth and dysmorphogenesis associated with prenatal exposure to alcohol was subsequently termed the *fetal alcohol syndrome* (FAS).

Based on Jones and colleagues' observations, escorted by subsequent scientific studies in human and animals, FAS is characterized by three main clusters of symptoms. These clusters are: (1) prenatal and/or postnatal growth deficiency, (2) CNS dysfunction reflected in mental deficit, and (3) a distinctive pattern of facial dysmorphology [1].

Pre and postnatal growth deficiency is evidenced in the birth weight and height of the child being below the tenth percentile for age or gestational age [26, 33], while head circumference is characteristically below the third percentile [26]; and these features seem to be consistent even at the age of 14 [10]. CNS dysfunction becomes obvious through behavioral/cognitive impairment including fine motor dysfunction and mental retardation, which is the most detrimental effect of prenatal alcohol exposure [26]. The distinctive pattern of facial and physical malformations include microcephaly [2], short eye lip openings (short palpebral fissures), flat midface, thin upper lip, a flat or absent groove between the nose and the upper lip (philtrum) [16], a short upturned nose [2], flat cheeks (maxilla), and flattened nasal bridge [26]; small teeth with defective enamel is an additional possible defect [15].

This clusters of deficiencies must occur together in order to allow for the diagnosis of FAS. In fact, each component alone is nonspecific and only the amalgamation of these allows for the diagnosis of FAS [1, 14]. Hence, experts in the field soon realized that some children exhibited some but not all the features of FAS or the same symptoms in various degrees of severity. For example, some children even thought they were exposed to alcohol prenatally and showed developmental delay along with behavioral abnormalities they did not have signs of facial dysmorphology.

In the face of the need for a new terminology, then, which would be able to describe these differentiations and denote that these abnormalities were congruent with prenatal alcohol exposure but not sufficient to permit the diagnosis of FAS, the term suspected *fetal alcohol effects* (FAE) was adopted [1, 14]. Subsequently, the Institute of Medicine suggested the distinction between three forms of FAE [16]. Thus, the terms *partial fetal alcohol syndrome* (partial FAS), *alcohol related birth defects* (ARBD), and *alcohol related neurodevelopmental disorder* (ARND) were introduced [16].

Partial FAS refers to children who have confirmed history of heavy prenatal alcohol exposure and show some components of the characteristic alcohol related facial dysmorphology, as well as physical growth and neurodevelopmental deficiencies [16]. ARBD applies to children with confirmed heavy prenatal alcohol exposure accompanied by one or more congenital defects, typically cardiac, skeletal, renal, ocular, or auditory [16] without having the characteristic facial features of FAS though [22]. Finally, ARND refers to children with confirmed heavy prenatal alcohol exposure who also exhibit measurable but milder neurobehavioral deficits than those seen in children with FAS [16], there is, however, lack of the characteristic facial defects and the growth deficiency associated with FAS [22].

Nowadays, the term *fetal alcohol spectrum disorders* (FASD) has been employed as an umbrella term describing the wide range of effects that can occur in an individual whose mother drank alcohol during pregnancy, but this term cannot be applied as a clinical diagnosis [7, 30]. The effects encompassed in FASD generally include physical, mental, behavioral and learning disabilities associated with prenatal alcohol exposure with lifelong implications [7].

Prevalence

Generally, it is estimated that 40% of children born to alcoholic mothers and 11% of children born to moderately drinking, but not alcoholic, mothers exhibit some difficulties related to FASD [17]. Prevalence estimates for FAS range from 1 to 3 per 1,000 live births, but rates may vary between populations. Estimates of the prevalence of FAS among chronically alcoholic women are 25 per 1,000. FAE is more prevalent than FAS, occurring at rates 3–4 times higher [26]. Finally, all the FASD together are 10 times more prevalent than FAS alone [6].

In one meta-analytic study contacted by May and colleagues [22], the overall rates of prevalence for FAS were estimated between 0.5 and 2 per 1,000 live births and for FAS and ARBD combined 10 per 1,000 live births in the United States during the 1980s and 1990s. It is also reported that in families where there is one child diagnosed with FAS, the incidence rate can be even 405-fold higher compared to the worldwide average [33]. Finally, the prevalence of FASD in the United States has been reported as 9.1 per 1,000 live births [7]. Nonetheless, these estimates are tentative since the diagnosis of any of these conditions is very difficult and thus may often be delayed or missed entirely [7].

Physiological Problems Evident in Affected Children

Physiological conditions experienced by children prenatally exposed to alcohol include cleft palate heart, kidney, visual [26, 29], renal and orthopedic defects [20]. Cardiovascular defects include septal anomalies and hypoplastic pulmonary arteries; renal defects may include pyelonephritis, painless hematuria, and hydronephrosis; and orthopedic anomalies may be manifested in radioulnar synostosis, camptodactyly of the fingers, and brachydactyly and clinodactyly of the toes [20]. Additionally, dental and ocular anomalies, accompanied by otitis mefia may be present [26], as well as hemangiomas, micrognathia, and eye and ear abnormalities [8].

Furthermore, sensory problems involving ocular, auditory, and vestibular problems caused by abnormal development of the CNS due to early alcohol exposure have also been reported. These sensory difficulties can consequently lead to permanent speech, language, and cognitive deficits, as well as impaired academic performance [2]. Further physiological problems, which have not been widely studied, include childhood leukemia [24] and cryptorchidism in boys [9].

High risks for premature placenta separation [29], spontaneous abortion [3, 15, 29] and stillbirth [2, 3, 29] have also been documented. In a retrospective study contacted by Abel [3], estimates for spontaneous abortion ranged, according to ethic groups and geographic places, between 18.8 and 81%. It has been also proposed that in the United States women diagnosed with alcohol abuse disorders are two times more likely to have experienced more than three spontaneous abortions [3]. Finally, maternal alcohol consumption poses an increased risk for sudden infant death syndrome, which is increased even more when combined with additional risk conditions, such as smoking [12].

Neurological, Cognitive and Behavioral Problems

Early post-mortem autopsy investigations on individuals prenatally exposed to alcohol have reported a wide range of neuroanatomical abnormalities. These abnormalities include: hydrancephaly, anencephaly, hydroncephale, microcephaly, cerebral dysgenesis, abnormal neural migration, and severe CNS disorganization. Additional abnormalities of the basal ganglia, the cerebellum, and the hippocampus were also noted [30].

Contemporary neuroimaging studies have demonstrated specific neuroanatomical defects. For example, using magnetic resonance imaging (MRI) techniques researchers have identified reductions in the cranial, cerebral, and cerebellar vaults in individuals diagnosed with an alcohol related disorder. In addition, others have reported hypoplasia in the temporal, frontal and especially in the parietal lobes. These abnormalities are thought to be related to executive functioning problems, such as poor planning, cognitive inflexibility, reduced response inhibition, and special memory problem [30].

White matter hypoplasia and increased gray matter density in inferior parietal regions and superior temporal lobes were also evident in the brains of affects children. White matter hypoplasia and increased gray matter in the brain have been associated with deficits in language processing and object recognition. Moreover, reduced surface area and volume of the cerebellum, as well as damage localized to particular areas of the cerebellum, which are consistent with difficulties in balance, bimanual coordination, verbal learning and memory, have also been reported [30].

Finally, studies investigating the corpus callosum have identified hypoplasia of this structure, as well as changes in its shape, a finding which is related to bimanual coordination, attention, executive functioning, and verbal learning deficits. Studies referring to the basal ganglia have reported reduced volume of this structure in affected individuals, and this is associated with problems in movement, procedural learning, and cognitive, affective and

motivational functioning, while others have reported asymmetrical hippocampal formations, which are linked to memory deficiencies [30].

Developmentally, neurological deficit manifestations vary according to the age of the child and the circumstances activated in one's environment. Generally, however, evidence suggest that during the neonatal period these neurological deficits manifest in poor sucking, disturbed sleep states, low levels of arousal, tremulousness, unusual body orientation, excessive mouthing, abnormal reflexes, hypertonia, and poor habituation [33]. Newborns have also been described as difficult to feed and soothe as well as irritable. They may also experience withdrawal symptoms and delays in achieving speech and motor milestones [26]. In older infancy, difficulties are evident in disturbed sleep-wake patterns [31], poor visual recognition, and delays in mental and motor development, spoken language, and verbal comprehension [33]. During the pre-school years, children display attention deficits, delayed reaction times, and problems in fine and gross motor performance. In adolescence, affected children tend to portray more overt psychological problems, while in adulthood they fail to achieve adaptive living and self-sufficiency [33].

More specifically, one of the most detrimental effects of prenatal exposure to alcohol and FAS is mental deficit, ranging from borderline to severe mental retardation [2], with children diagnosed with FAS usually demonstrating an average IQ between 60 and 65, even though there is a wide range of individual IQ scores [25, 26].

Furthermore, it has been generally suggested that maternal alcohol consumption during pregnancy may lead to an array of further cognitive effects in the exposed child. Such effects include hyperactivity and attention problems, learning and memory difficulties, as well as challenges referring to social and emotional development [16].

Attentional difficulties are more evident in certain aspects of attention, such as executive functioning [27], cognitive flexibility, planning, strategy use, verbal reasoning, inhibition, set shifting, fluency, working memory, emotion-related learning [25], and focused attention [16] which seems to be more pervasive in deficits in the ability to focus and sustain attention to visual stimuli and deficits in the ability to sustain attention to auditory stimuli over long intervals [21].

Deficits in language are, on the other hand, found to be specific to production and pragmatics, resulting in defects in the comprehension and use of grammatical markers and in the processing and memorizing linguistic elements [26] as well as in both receptive and expressive language abilities [23]. These language and speech problems appear to be independent of the individual's mental ability [15, 23] and are more likely to impact children's social interactions and behavioral adjustment [23].

As far as social and adaptive behavior is concerned, children with FAS appear outgoing, socially engaging, affectionate, excessively friendly, and they enjoy bodily contact. FAS children also seem not to be able to discriminate between familiar and unfamiliar people, a behavior that raises concerns regarding their safety [25, 26]. These children, additionally, appear to have difficulties with the "theory of mind" (i.e., not being able to infer another's perspective) [25]; and have been found to exhibit poor socioemotional development, which cannot be attributed to their IQ scores [16].

Generally, the cognitive and behavioral profile of children prenatally exposed to alcohol include: communication and speech difficulties, such as speaking too much and/or too fast, and interrupting others; problems with personal manners, such as clumsiness, disorganization, and loosing things; emotional lability, such as rapid mood changes and overreacting; motor defects; poor academic performance caused by their short attention span and their difficulty completing tasks; impaired social interactions, including their lack for awareness of consequences of one's actions and their poor judgment; and unusual physiological responses, such as hyperactivity and sleep difficulties [7, 25].

Comorbid Psychopathology

The most frequently reported behavioral disorder associated with FAS is attention deficit hyperactivity disorder (ADHD) affecting approximately 85% of preschool FAS children [25, 26]. On the other hand, research suggests that hyperactive children often come from homes where one or both parents are alcoholics, thus FAS children are more likely to be raised in unstable home settings. Furthermore, it seems that mothers who have problems related to alcohol consumption were drinking before their pregnancies and are more likely to continue drinking during as well as after that, thus posing the question of whether the difficulties experienced by affected children are due to the combination of pre-, peri- and post-natal maternal alcohol consumption [2] or due to the combination of these.

Other psychological difficulties that have been associated with FAS include: eating problems resulting in failure to thrive, something which can also be associated with the inhibition of the milk ejection reflex in the mother due to alcohol consumption and thus the inability of the mother to feed the child adequately [2]. Moreover, sleeping

disturbances, ticks, phobias, temper tantrums, enuresis and encopresis, and psychosocial difficulties [25, 26], as well as fetal distress and neonatal depression are also common outcomes related to prenatal alcohol exposure [29].

There has also been noted that maternal alcoholism affects the parent-child relationship, since withdrawal symptoms in the mother may affect her behavior toward the child [2] and since alcoholic mothers often fail to assume maternal responsibilities [26]. For example, children prenatally exposed to alcohol appear to be irritable during infancy, which is a temperamental variable, acknowledged to be involved into poorer mother-child attachment and more behavioral problems in childhood [16].

It is well documented that the early attachment relationship is the basis upon which the child develops representations of the self and others and determines the ways a child relates to others and resolves interpersonal issues later in life [28]. Thus, problematic early attachment relationships can have detrimental effects in the child's interpersonal development. Research contacted with children of alcoholic mothers indicated that children of mothers who admitted drinking more before and during pregnancy were judged to be insecure [28]. These children also appear to be less socially competent and more aggressive in the classroom and during adolescence they fail to consider the consequences of one's actions, they are unable to respond appropriately to social cues, and have poor interpersonal relations [16].

It is also very common that children born by alcoholic mothers to be raised in foster homes or adoptive placements, not only because their mothers are unable to care for them adequately but also because these mothers are at increased risk for premature mortality due to their drinking habits [22], thus posing additional risk factors to their development [26].

Nevertheless, the structural abnormalities observed in the brains of children with FASD cannot be attributed to any of the adverse environmental factors described above. Therefore, even though the environment may be a factor of blocking cognitive development, environment alone cannot be held responsible for the deficits exhibited by affected individuals [2].

FASD in Adulthood

The defects delineated above, unfortunately, continue into adulthood, pinpointing the profound, pervasive, and persistent nature of these disorders. Is has been reported that affected individuals continue to experience cognitive functioning deficiencies, especially with mathematics, abstract reasoning, generalization, attention, concentration, memory, judgment, and comprehension [8]. Behaviorally, they exhibit hyperactivity, impulsivity, stubbornness, and oppositional behavior. Most cases also fail to achieve age-appropriate social and communication skills, resulting to maladaptive social functioning as evidenced in failure to consider consequences for their actions, failure to respond to appropriate social cues, lack of reciprocal friendships, mood lability, and bullying [8]. Moreover, these individuals are more likely to experience psychological difficulties related to substance dependency, inability to develop appropriate sexual behavior and they are also more likely to have related legal problems [8].

More specifically, Famy and colleagues [11] have reported that from a sample of 25 individuals diagnosed with FAS and FAE, who were older than 18 years old, 15 had a diagnosis of alcohol or drug dependence, 11 had major depressive disorder, 10 had diagnoses of a psychotic disorder, 5 had bipolar I disorder, 5 had anxiety disorders, and 4 had eating disorders. Famy and colleagues also reported that a substantial percentage of the individuals also had an Axis II diagnosis; 6 had avoidant personality disorder, 4 had antisocial personality disorder, and 3 had dependent personality disorder.

Assessment, Diagnosis and Management

So far, it has become apparent that the adverse effects related to maternal alcohol consumption are neither rare nor simple and that FAS is only a restricted representative of these effects [4]. Since FAS was first described in 1973, it has become obvious that this spectrum of disorders is multifaceted. Affected individuals demonstrate a wide spectrum of symptoms, ranging from severe growth restriction, intellectual disability, birth defects and characteristic dysmorphic facial features to normal growth, facial features and intellectual abilities but with lifelong deficits in several domains of brain function [7]. Moreover, FASD is a condition that has implications for everyone; the affected person, the mother, the family and the community.

FASD is the most prevalent cause of non-genetically based mental retardation and is the only completely preventable and avoidable form of mental defects [33]. In addition, research has indicated that the difficulties evidenced in alcohol exposed children are long-lasting [26] and that these children remain handicapped for the duration of their lives [15]. Thus, an early diagnosis, based on sound assessment, is essential since this is the only vehicle that can allow access to interventions and resources that may alleviate the development of subsequent

"secondary disabilities" (such as unemployment, mental health problems, trouble with the law, inappropriate sexual behavior) among affected individuals.

Furthermore, an early diagnosis will also allow suitable intervention, counseling and treatment for the mother and may prevent prospective births of more children with the same difficulties [7]. Most importantly, accurate and timely diagnosis is essential to improve outcome, as misdiagnoses result in unsuitable interventions, high risk for the development of secondary disabilities, failure to provide prevention and finally inaccurate estimates of incidence and prevalence.

In addition, it is well documented that FAS is difficult to identify, especially at birth, because the signs and symptoms of the syndrome are milder and undifferentiated. Furthermore, the expressed signs of FAS may resemble the patterns of deficiency evident in other conditions such as the DeLange syndrome, Williams syndrome, Dubowitz syndrome, Stickler syndrome, X-linked mental retardation [20, 26], Aarskog syndrome, maternal PKU effects, Noonan syndrome, and Toluene embryopathy [20]. Therefore, differential diagnosis between conditions is of utmost importance. Differential diagnosis however requires a clinical assessment contacted by multidisciplinary teams experienced in the field.

Contemporary knowledge of the complexity of the difficulties associated with prenatal alcohol exposure impose that a comprehensive, multidisciplinary assessment is necessary to make an accurate diagnosis and provide sensible advice for management [7]. The special physical, emotional, and mental needs [15] of children pre- and postnataly exposed to the detrimental effects of alcohol must be adequately assessed and recognized within the context of a multidisciplinary approach so that appropriate residential, educational, mental health, and vocational rehabilitation management programs be developed to facilitate individuals' development to the degree possible [26].

Thus, the core team for such a multidisciplinary assessment ideally should consist of: the coordinator for case management (e.g., nurse, social worker), a physician specifically trained in FASD diagnosis, a clinical psychologist, an occupational therapist, and a speech-language pathologist. Supplementary members, such as addiction counselors, childcare workers, cultural interpreters, mental health workers, parents or caregivers, probation officers, psychiatrists, teachers, vocational counselors, nurses, geneticists or dysmorphologists, neuropsychologists, family therapists can also be included [7].

Following sound assessment accurate diagnosis should be made. The complex and wide variety of the symptoms experienced by children prenatally exposed to alcohol poses great challenge in the development of adequate diagnostic and classification systems. Since alcohol-related abnormalities gained recognition several schemes of diagnosis and classification have been presented. Some of these classification schemes are the one proposed by Majewski and colleagues in 1976 [26] and that proposed by Burd and Martsolf in 1989 [26]. More recent efforts have led to the development of the Institute of Medicine Guidelines [14], the 4-Digit Diagnostic Coding System [4, 5], the Centers for Disease Control Guidelines [20], and the Canadian Guidelines for diagnosis [7]. The decision of which of these systems should be applied can be made only by the clinician since debate upon the qualities of the schemes is still in progress and there is no consensus reached yet as to which is the most appropriate.

Finally, prevention is the only protective measure against FASD and this can be accomplished only by abstinence during pregnancy, since a "safe" limit of alcohol consumption during pregnancy has not been defined [8, 17, 33]. Therefore, policy makers as well as communities should focus on prevention programs such as public health education and public health campaigns advising women to abstain from alcohol use during pregnancy or even while considering pregnancy [13]. Such educational programs should also be applied into school settings [8]. Moreover, prenatal counseling is a strategy widely used in several prevention programs along with screening tools in prenatal clinics for early identification of alcohol use with women at risk, which should also be followed by providing preventive and supportive counseling [8, 13] to identified women.

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Maternal Smoking

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Definition

The term "maternal smoking" refers to the adverse behavior of women who tend to smoke (Smoke refers to inhaling of burned tobacco) before, during, or after the gestation of a child.

Description

Maternal smoking has detrimental effects on both the mother and the offspring. Inevitably, the offspring of a mother who is a smoker is exposed to the damaging effects of smoking. Therefore, maternal smoking constitutes a significant risk for the development of children from the time they are a fetus [7] since women that smoke are at risk for ectopic (Ectopic pregnancy occurs when the fertilized egg grows outside the uterus) pregnancies and spontaneous abortions [9]. More specifically, although in the uterus, the fetus is still affected by the smoking mother. Studies have suggested that maternal smoking has a detrimental impact on fetal development and is related to increase in perinatal morbidity and mortality [4, 9]. Furthermore, many studies have provided corroborative evidence that maternal smoking is associated with preterm delivery (i.e., delivery before 37th week) and with Smallness-for Gestational-Age (SGA), a condition where "the birth weight is below tenth centile for

gestational age at deliver" [3, 13]. In addition smoking during pregnancy and low birth weight have been indicated as risk factors for sudden infant death syndrome (SIDS) (Sudden infant death syndrome refers to the unexpected death of an infant during the first year of life) [10].

Opportunities for breastfeeding are diminished in children of mothers who smoke relative to those who do not. It has been reported that smoking mothers are less likely to breastfeed their infants or breastfeed for a shorter period of time than nonsmoking mothers [5]. Breastfeeding has well documented beneficial effects not only on the physical health of the developing infant but also on his/her cognitive development and psychological well being. Consequently the diminished opportunity for breastfeeding places the children of mothers who smoke in a more disadvantageous position.

Harmful outcomes of being exposed to smoking while in the uterus may become evident much later in a child's life. Maternal smoking has been shown to have an impact on many aspects of the developing child, such as his/her mental and physical health and behavior. More specifically, maternal smoking has been implicated in attention deficit hyperactivity disorder [11], in the development of cognitive and behavioral problems in offspring [2, 12], as well as in pediatric obesity [1, 6]. Furthermore, exposure to maternal smoking is associated with immune system dysfunction, increasing the risk for childhood cancers, asthma [8] and the development of acute lower respiratory infections, such as bronchitis and pneumonia [8].

Contemporary research started to explore the risk that being exposed to "thirdhand smoke" (residual tobacco smoke contamination that remains after the cigarette is extinguished) [14] places on the developing child. That is, children may be exposed to "thirdhand smoke," even when they are not directly present when their mother smokes. Therefore, old beliefs about smoking being harmless to the children if they are not present are now being challenged.

Educating women on the risks that smoking imposes on the health of their children, is a promising way for limiting maternal smoking. In addition, stricter smoking bans are required for better protection of children.

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Math Deficit

▶Dyscalculia

Math Difficulties

▶Dyscalculia

Math Disorder

▶Dyscalculia

Math Dyslexia

►Dyscalculia

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Life Dates

February 4, 1950–Present

Educational Information

Nancy Mather is a renowned expert in the field of learning disabilities. Dr. Mather earned a Bachelor's degree in English in 1972 and a teaching certificate in 1974 from the University of Colorado, Boulder. In 1976, she earned a Master of Arts degree in special education from the University of Northern Arizona. Following 3 years of teaching students with learning disabilities in Santa Cruz, CA, Dr. Mather earned the Ph.D. from the University of Arizona in 1984 with a major in special education and minors in school psychology and reading. Following graduation, she completed a postdoctoral fellowship at the University of Arizona. Dr. Mather was mentored by and completed her dissertation under the direction of Dr. Samuel Kirk, pioneer in the field of learning disabilities, attributed with coining the term *learning disabilities.*

Accomplishments

Author or coauthor of over a dozen books and over a dozen book chapters, Dr. Mather is perhaps best known for her works on interpretation and educational implications of the Woodcock–Johnson cognitive and achievement tests (e.g., *Woodcock–Johnson III: Recommendations, Reports, and Strategies* [10]). In addition to several works on use of the Woodcock–Johnson instruments, Dr. Mather has coauthored several tests including the *Woodcock–Johnson Tests of Cognitive Ability and Achievement* (3rd ed.). [9], the *Woodcock–Johnson Diagnostic Reading Battery* [8], and the *Woodcock–Munoz Bateria III* [4]. An expert in reading and writing learning disabilities, she has also coauthored tests focusing specifically on reading fluency (*Test of Silent Word Reading Fluency* [3]) and orthographic skills (*Test of Orthographic Competence* [5]).

A respected scholar, Dr. Mather has conducted research on topics including teachers' knowledge of literacy instruction, effective strategies for literacy instruction, test accommodations for students with learning disabilities, and other issues related to effective teaching of students with learning disabilities. Recent endeavors include coauthoring reading programs including *Phonics Reading Lessons: Skills* [1] and *Phonics Reading Lessons: Practice* [7]).

Contribution

Drawing on her early work as a teacher of students with learning disabilities, Dr. Mather has made major contributions to the field of learning disabilities. Dr. Mather's professional contributions include service on editorial boards of numerous professional journals including *Journal of Learning Disabilities*, *Learning Disabilities Research and Practice*, *Learning Disabilities Quarterly*, and *Learning Disabilities: A Multidisciplinary Journal.*

In-depth knowledge, an effective communication style, and passion for the field have made Dr. Mather a sought-after speaker at professional conferences, Dr. Mather has served as keynote or highlighted speaker at numerous international, national and regional professional conferences, including Learning Disabilities Association International, National Association of School Psychologists, and International Dyslexia Association.

Current Involvement

In 2003, Dr. Mather earned full professor status at the University of Arizona where she continues to teach and serve on faculty in the Department of Special Education, Rehabilitation, and School Psychology. In addition, she has a long history of service to individuals with learning disabilities, as a learning disabilities teacher, as a diagnostician, and educational consultant. Two of her most recent scholarly texts include *Learning Disabilities and Challenging Behaviors: A Guide to Intervention and Classroom Management* (2nd ed.). [2] and *Evidence-Based Interventions for Students with Learning and Behavioral Challenges* [6].

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Maturation

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Synonyms

Genetic blueprint; Growth

Definition

Maturation is the predetermined unfolding of genetic information.

Description

The concept of maturation was pioneered by the American psychologist *Arnold Gesell* [3]. Maturation stresses the importance of *nature* or *genetics* in human development, as opposed to *nurture* or environment. Maturational development occurs in fixed sequences or stages that are governed by genes. This "genetic blueprint" for development determines the sequence, timing and form of emerging action-patterns [4].

Relevance to Childhood Development

Gesell observed that the motor skills of children developed in a fixed, or stage-like, pattern that were mostly unaffected by external influences. He called this process maturation. Maturation can first be seen in the developing *embryo*, where development occurs in the same pattern for every human without variation. In the embryo, the heart and cardiovascular system develop first, quickly followed by the central nervous system (brain and spinal cord), with the extremities, such as arms and legs, developing last [2, 5].

Sequential development continues after birth in a *cephalocaudal* (head-to-foot) pattern. Infants first control their mouths, then eye movements, followed by control over the neck, shoulders, arms, hands, fingers, trunk, legs and feet. As infants continue to grow into toddlers, they learn to sit up, stand, cruise, walk and then run, with all of these developing in a specific order that emerge with the maturational growth of the nervous system. Rates of development vary from child to child, but all children proceed through the same sequence [6].

Gesell's main scientific focus was maturational growth with regards to early motor behavior. However, Gesell believed that maturation governed growth in all areas of development:

> [The child's] nervous system matures by stages and natural sequences. He sits before he stands; he babbles before he talks; he fabricates before he tells the truth; he draws a circle before he draws a square; he is selfish before he is altruistic; he is dependent on others before he achieves dependence on the self. All his capacities, including his morals, are subject to the laws of growth [3].

Gesell did not completely discount the contribution of nurture or the environment in child development, but he believed that socializing forces worked best when they were in tune with inner maturational principles [1]. For example, Gesell was strongly opposed to trying to induce early walking in a child. He believed that children would walk when they were maturationally prepared to do so and efforts to speed the process could be harmful or create tension between caregivers and children. In addition, research has shown that efforts to speed up motor development produce only small and temporary effects.

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Maturity

▶Psychological Age

Maxi Task

▶False Belief Task

May Institute

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Definition

The May Institute provides research-validated services to children and adults with autism, brain injuries, mental retardation, pervasive developmental disorders (PDD), and behavioral healthcare needs [1].

Description

The May Institute is a network of educational, behavioral, and rehabilitative programs offering a broad range of services in more than 200 sites throughout the country. Its programs blend science and practice, with a core focus on research and training. The May Institute maintains affiliations with more than forty hospitals, universities, and human service agencies worldwide.

The May Institute was founded in Chatham, MA, by Dr. Jacques M. May and his wife, Marie Anne, in 1955. The Institute's first school was created in order to provide treatment and a supportive environment for the couple's twin boys with autism. Dr. May and his wife envisioned a program that would allow children with disabilities to lead the fullest lives possible. Today, the May Institute is among the largest, most respected, and innovative behavioral healthcare organizations in the country.

May provides comprehensive services to children and adolescents with autism, brain injury, developmental disabilities, and behavioral disorders. They have various programs ranging from research-based services for children with autism, to behavioral therapy techniques, and home-based and school consultation services. The Institute maintains four schools for children and adolescents with autism, PDD, and other developmental disabilities located in: Randolph, West Springfield, and Woburn, MA; and Santa Cruz, CA. A supplementary school serves children and adolescents with brain injuries. In addition, the May Institute has developed a unique program that combines behavior support techniques and instructional practices to reduce discipline problems and enhance academic commitment in schools throughout the country. A child abuse prevention program, Safety Protection Education and Assertiveness for Kids (SPEAK), was also developed in order to educate youth about the topic of abuse.

The May Institute offers day program services to adults with autism, mental retardation, developmental disabilities, and behavioral disorders. The Institute also provides community living services including: supported employment environments, employment training, behavioral therapies to assist with daily routines, and 24-h-a-day supervision. For adults with behavioral health concerns ranging from anxiety, eating disorders, and marriage problems to acute psychiatric illnesses, the May Institute offers a full range of mental health services.

The Institute has an empirically based orientation with training and research as a major component. Since 1978, professionals at the May Institute have collectively authored hundreds of articles and book chapters in the following domains: autism, behavioral medicine, behavioral healthcare, brain injury, severe behavioral disorders including conduct disorder, child development, developmental disabilities, eating disorders, forensic psychology, mental illness, mental retardation, organizational behavior management, public schools, quality management, rehabilitative services, self-injurious behavior including suicide, special education litigation, staff training and supervision, and violence prevention. The May Center for Applied Research was created in 1997 to supervise and coordinate research activity at the May Institute. The Center directs and supports research initiatives within the educational and healthcare services. Current research initiatives at the May Institute focus on evaluations of instructional and treatment methods, systems analyzes, comparative outcome assessments, clinical efficacy studies, documentation of large-scale program design, and behavior support and preventive interventions within public schools.

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McCarthy Scales of Children's Abilities

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Definition

The McCarthy Scales of Children's Abilities refer to a standardized psychological test that assesses a young child's general cognitive abilities.

Description

The McCarthy [3] Scales of Children's Abilities developed by Dorothea McCarthy debuted in 1972. The test was developed based on McCarthy's teaching and clinical experience and took into account what she called functional considerations. The McCarthy was one of the first assessment tools to be developed as an alternative to the better known Wechsler scales, the Wechsler Preschool and Primary Scale of Intelligence and the Wechsler Intelligence Scale for Children, and the Stanford-Binet. For its time, the McCarthy was considered to be a psychometrically sound instrument; while it maintained its popularity through the 1990s, because it has never been re-normed it has fallen out of favor in recent years [2].

The McCarthy Scales of Children's Abilities are designed as an individually administered test of intelligence for children between the ages of 2½–8½ years of age. Test administration time ranges between 45 min and 1 h depending on the age and ability of the child. In lieu of yielding an IQ score as the measure of intellectual functioning, the McCarthy provides a general cognitive index (GCI). This was designed to avoid the misleading connotations that have been attributed to IQ scores [1]. The GCI provides an index of current functioning that does not mark anything as permanent about the child or indicate causal factors. In addition, information is provided on the child's verbal and nonverbal ability, numerical aptitude, short-term memory and coordination.

The McCarthy Scales contain 18 subtests that compose six scales. The Verbal Scale measures maturity of verbal concepts and includes tests of Pictorial Memory, Word Knowledge, Verbal Memory, Verbal Fluency and Opposite Analogies. Taken together, the scale is thought to measure the ability to comprehend verbal information and to express oneself through language. The Perceptual-Performance Scale measures nonverbal reasoning ability and visual-motor coordination. Its seven subtests include Block Building, Puzzle Solving, Tapping Sequence, Right-Left Orientation, Draw-A-Design, Draw-A-Child and Conceptual Grouping. The Quantitative Scale provides information on the child's ability to use and understand number concepts using the three subtests of Number Questions, Numerical Memory, and Counting and Sorting. The total score based on these 15 subtests yields the GCI or overall assessment of the child's cognitive abilities. The fifth scale, the Memory Scale is based on the four subtests which focus on auditory and visual short-term memory. These are the Pictorial Memory, Tapping Sequence, Verbal Memory and Numerical Memory subtests. The sixth scale, the Motor Scale provides an estimate of the child's gross and fine motor coordination. It includes the Draw-A-Design and Draw-A-Child subtests as well as measures of Leg Coordination, Arm Coordination and Imitative Action.

Raw scores on all scales are converted into standard scores so that the scale scores have means of 50 and standard deviations of 10. The GCI has a mean of 100 with a standard deviation of 16.

The McCarthy was considered to be a well standardized test when it was published [4]. Its norms mirrored the 1970 US census data and 1,032 children were tested. The sample was stratified by gender, color (white/nonwhite), geographic region and father's occupation. The test was determined to be reliable both over 1 month and 1 year intervals. Reliability coefficients for the GCI ranged from 0.90 to 0.85, respectively, although individual tests were not as reliable. The McCarthy was also considered valid when compared to other intelligence and achievement tests; however individual children sometimes showed discrepant scores and thus GCI scores may not be equivalent to IQ scores as found on either the Stanford-Binet or Wechsler tests [2].

When it was published in 1972 the McCarthy was a welcome addition to the field. It provided a test that could be used with children as young as 2½ years and its play like qualities made it an attractive test to use with such young children. The manual was considered thorough, the instructions for administration were clear and the test contents were not only well constructed they were easy for examiners to use and fostered interaction with the child. The test was especially suitable for assessing young children with learning problems or other delays. The McCarthy appeared to be a leading contender in the burgeoning field of child assessment, however, because the McCarthy has never been re-normed it has become outdated. Furthermore because the GCI was not equivalent to similar IQs its use for placement decisions has always been questionable. Had the McCarthy been re-normed its limitations could have been addressed. These include the lack of any measures of social judgment or abstract reasoning, weak reliability of individual subtests and weak support for the scales as independent factors.

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Mean

►Norms

Measurement Theory

►Psychometrics

Media

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Synonyms

Advertising; Announcement; Billboards; Books; Broadcast; Cable; Commercials; Communication; Correspondence; Intelligence; Magazines; Mass media; Medium; Music; News; Press; Print; Publishing; Radio; Television

Definition

Media is a form of communicating a message or information to the public that comes in a variety of forms.

Description

Media is the plural form of the word medium. Media also refers to the term mass media commonly utilized to describe an outlet for the means of communication; thus is associated with the press and news reporting agencies. The media is one of the greatest driving forces in society. We are all products and producers of our environment which is greatly shaped and molded by the information we receive from the press. Once this information is disseminated it is then interpreted based on one's sensory perception (i.e. five senses sight, taste, touch, sound, and smell), and worldview of the messages sent. We must also take into account that 'one's perception is their reality' which is intertwined with how an individual interprets and understands the barrage of messages sent out by the media. In addition, once an individual deciphers the data it has the potential to shape and mold individual's thoughts, actions, behaviors, emotions, and ideals.

This multi-billion dollar a year powerhouse is responsible for delivering information through a variety of avenues such as: television, Internet, mail, telephone, radio, news, magazines, books, billboards, and music etc. Advertisements alone which in fact is "the most important aspect of mass media" produces over $40 billion a year in revenue through the mode of television and radio, and an estimated $30 billion a year in revenue from newspapers and magazines [3, p. 35]. The advertising industry can create a false sense of security and hope by marketing a product or concept that is disguised as something that will meet our basic human instinctual needs and desires. Kilbourne [2] stated that "advertisers know us better than we know ourselves, and they use this knowledge to take advantage of us" (p. 77). On the other hand these public institutions collectively deliver news that without this source of communication would leave people less informed. Media involves not just different methods to relay the information, but also key counterparts for example: broadcasters, entertainers, journalists, the paparazzi, newscasters, movie stars and celebrities, photojournalists, marketing and advertisement executives, photographers, news crews, and radio deejays just to name a few.

Relevance to Childhood Development

Children are like sponges absorbing information they encounter in their environment from a variety of sources which includes the media to make sense of the world around them. Media exposure is something that begins in childhood, and continues as one advances through the lifespan. With this young innocence comes the ability to be easily influenced. The media not only targets adults as consumers, but children as well. Kilbourne [3] reported that these young consumers spend "$130 billion dollars a year of their parents spending to $8 billion dollars of their own money annually" (p. 44). With children's spending habits reaching into the billions a year it is creating a market where companies and organizations customize their messages through various outlets of the media to reach their little consumers. The information broadcasts according to age-related interests such as toys, clothing, junk food, music, video games, and movies. As a child is moving through the different stages of development he or she can interpret these messages and the abundance of information as an integral part of their self identity on cognitive, emotional, and social levels with a particular focus on the ability to relate to others.

Ward [5] discussed how media not only affects one's beliefs about themselves, aggression, sexuality, and weight, but that television exposure also impacts the structure and functioning of the brain; thus providing a link between excessive television viewing and attention deficit hyperactivity disorder (e.g., ADHD). Media use contributes to the modeling and the shaping of behaviors particularly

surrounding those related to the defining characteristics of what is considered feminine or masculine. Society defines what is acceptable for one to be considered 'feminine or masculine' based on the images portrayed by the media. If a child or adolescent deviates from what is socially acceptable this can increase the odd for social isolation and exclusion early on in childhood because of not "fitting in" to these specific molds outlined by societal standards of what is acceptable. Ward [5] further posits that

> Nearly every media portrayal, scene, and storyline conveys a message about normative and expected behaviors of women and men. From these portrayals, much can be learned about what types of women are considered attractive, which male behaviors draw scorn, and which life choices are rewarded. (p. 65)

Almost every home household at least in the United States has at least one television set in the home and children from lower income families where the parents have less education levels are more likely to watch more television than children from middle to upper socioeconomic status. The repeated television exposure can result in these children being exposed to the messages brought about by the media as the primary source of education both inside and outside the home. On the other hand, Linebarger and Piotrowski [4] found that since television is a popular and easily accessible medium it can assist children from lower socioeconomic backgrounds with parents with lower levels of education related to the processing of literacy skills, conceptual knowledge, vocabulary development, and even the early development of social skills by watching and listening to narrative-based television stories. This is particularly important when the parents of these children are unable to assist in the education preparation and school readiness due to a lack of financial resources and education.

Fouts et al. [1] reviewed several television cartoons and *Disney* films to assess the use of the word "evil" when referring to a character and reported that 74% of the Disney animated movies and 44% of the television cartoons "indicated the modeling of demonizing for young viewers" (e.g., a person engaging in hurting someone else or to be considered as an evil person, monster, devil, demon, or wicked) (pp. 15–23). Fouts et al. [1] suggests that "watching Disney animated movies may influence children's acquisition of demonizing labels and stereotypes as well as subsequent imitation of the use of such labeling behavior" (p. 20). The findings presented by Fouts et al. have a variety of implications not only for parents, but professionals working with children such as (a) the importance of parents and professionals being critics of children's media, (b) educate children how to be savvy consumers, (c) professionals need to address the stereotypes highlighted in these different types of children's media, and (d) both parents and professional need to take into consideration the beliefs children may adopt around "perceived wrong-doing may be influenced by observing demonizing in the media" (p. 21).

Research findings show inconsistent data related to the usefulness or harm in using the media as an educational outlet for both children and adolescents. The first step begins with parents and professionals taking on active roles as critical consumers of media by monitoring the programs youth frequently view today. It is also important to take on active roles by creating media literacy programs to increase insight and create dialogue with children on these different messages, labels, or stereotypes that may be presented in different forms of media. By creating these types of programs can create a generation of young consumers who are able to "analyze and evaluate the media so that they may less vulnerable to the impact of media's messages" as an integral part of understanding their place in the world, self-worth, and how to relate to others ([1], p. 21).

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Media Influence

►Social Learning Theory

Median

►Norms

Mediated Learning

►Dynamic Assessment

Mediators

►Variables, in Experimental Developmental Research

Medical Terms: Anabolic-Androgenic Steroids (AAS)

►Anabolic Steroids

Medium

►Media

Medulla

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Synonyms

Medulla oblongata

Definition

The Medulla represents the lowest portion of the brainstem and plays a vital role in the regulation of functions such as breathing, heart rate, and blood pressure.

Description

The Medulla represents the lowest structure of the brainstem. It lies just below the Pons and just above the Spinal cord. The Medulla is the site at which the Vagus, Hypoglossal and Glossopharyngeal cranial nerves arise [1]. Functionally, the Vagus nerve controls the transmission of impulses to and from the CNS from and to the body [2]. In comparison, the Hypoglossal nerve corresponds functionally with the control of the tongue muscles while the Glossopharyngeal nerve corresponds with aspects of taste on the posterior portion of the tongue, tongue control and swallowing [2]. It is also the case that where the Medulla and Spinal Cord a structural region known as the Pyramidal Decussation originates. It is at this point that the majority of the fibers in the Corticospinal tract, which is an essential sensory and motor pathway, cross over to the other side [1]. The functional impact of this is seen in the strong contralateral (i.e., opposite side) presentation of the sensory and motor systems. Specifically, due to this crossing over, sensory and motor functioning of one side of the body is controlled by the opposing side of the brain. As such, lesions above the Pyramidal Decussation (i.e., within the brain) produce contralateral (i.e., opposite-side) impairments [1]. For example, infarction (i.e., stroke) in the region of the right Middle Cerebral Artery may well produce paresis (i.e., weakness) of the left arm. However, lesions (i.e., injuries) below the Pyramidal Decussation will produce ipsilateral (same-side) impairment, as the tracts have yet to cross over [1]. For example, a right-sided lesion below the Pyramidal Decussation (within the spinal cord or peripheral limbs) would produce right-sided impairment in lieu of left, as would occur if the lesion was above the Pyramidal Decussation. Given it houses the Pyramidal Decussation, which is the site at which the brain and spinal cord truly join one another, the Medulla can be conceptualized as the point at which the back-and-forth communication between these two main components of the CNS (i.e., brain and spine) really takes place [4].

Aside from being the origin site of the aforementioned cranial nerves and the Pyramidal Decussation, the Medulla itself, often referred to as the Medulla Oblongata, is charged with the functional duty of regulating vital functions such as respiration, blood pressure and heart rate, and basic muscle tone [4]. Given the Medulla's role in these functions, in combination with its' aforementioned relationship with key sensory and motor pathways, the types of outcomes following lesions (i.e., injuries) of the Medulla may range from subtle deficits of sensory and/or motor functioning to death [2].

In regards to its relationship to child development, the Medulla is one of the first areas of the CNS to develop, becoming functional in the early portions of the second trimester and is generally fully developed by the end of the second trimester [3]. This is essential given the vital functions the Medulla controls. As the Medulla activates in the early weeks of the second trimester, the fetus will begin to display critical reflexes such as continuous breathing movements that involves contractions of the diaphragm and chest muscles as well as sucking and swallowing reflexes. As the Medulla continues to develop over the course of the second trimester these reflexes become stronger and stronger. By the time the infant is born, these reflexes are now strong enough to allow them to breathe and feed outside of the womb.

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Medulla Oblongata

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Synonyms

Medulla

Definition

The Medulla Oblongata is one portion of the brain stem which regulates life sustaining functions such as breathing, heart rate and blood pressure.

Description

The Medulla Oblongata constitutes one of the four parts of the brainstem that also includes the Pons, structures of the Midbrain (i.e., Tectum and Tegmentum), and structures of the Diencephalon (i.e., Thalamus and Hypothalamus) [3]. It is part of the Hindbrain, which is the point at which the brain and Spinal Cord join together [1]. Functionally, it represents the area where communication between the brain and spinal cord takes place [3]. Through this line of communication, the Medulla's pathways carry motor (i.e., movement and tone) and sensory (i.e., perception) information back-and-forth between the brain and Spinal Cord [1].

In addition to it being the juncture between the brain and spinal cord, the Medulla Oblongata can likely be called the most essential anatomical structure of the entire Central Nervous System as it plays a crucial role in life sustainment. Specifically, the Medulla Oblongata controls vital functions such as respiration, blood pressure and heart rate, and basic muscle tone [3]. Although minor damage to the Medulla Oblongata may only produce impairments of sensory and/or motor functioning, by disrupting the lines of communication between the brain and the Spinal Cord, at times damage to the Medulla Oblongata may actually lead to death due to disruption of those life sustaining functions previously noted [1].

Developmentally, the Medulla is one of the most developed areas of the brain at birth and is important to the breathing and feeding capabilities of infants. The Medulla begins to develop towards the end of the first trimester, becoming functional by the beginning of the second trimester [2]. As neurons begin to activate in the Medulla, the fetus will begin to engage in critical reflexes including continuous breathing that involves contraction of the diaphragm and chest muscles as well as sucking and swallowing reflexes. These reflexes continue to strengthen throughout the second and, subsequently, the third trimester. As a result, when an infant is born most are capable of breathing and feeding because of the reflexive strengthening brought about by the development of the Medulla. This is in addition to the important role the Medulla plays in the control of blood pressure and heart rate, as well as basic muscle tone [3].

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Meehl, Paul Everett

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Life Dates

1920–2003

Introduction

Dr. Meehl was a leading psychologist whose work profoundly influenced methods of psychological inquiry and the understanding of psychopathology and personality. A true philosopher of science, he addressed wide ranging issues including the identification of symptom categories, the validation of test procedures, statistical significance testing, the analysis of cause, the mind-body problem, and applications of metascience, and is credited with inducing actual paradigm shifts in several of these areas. He is widely regarded as one of the most influential psychologists of the twentieth century [6]. It has been written that "Meehl's contributions to psychopathology and personality research are without parallel" [1].

Educational Information

Meehl was born and raised in Minneapolis, Minnesota where he remained to attend the University of Minnesota, completing his bachelor's degree (1941) and doctorate of philosophy (1945). Among several prestigious faculty and applied positions, Meehl spent his career as Regents' Professor of Psychology at the University of Minnesota.

Accomplishments

Suggestive of the breadth of his expertise and influence, Meehl served in faculty positions at the University of Minnesota in the departments of psychology, psychiatry, philosophy, neurology, and law. His corpus of published works has been praised for both its quantity and quality. Many of his almost 200 articles and books continue to rank amongst the most frequently cited publications. He has received countless honors and awards, including lifetime achievement awards from the American Psychological Association, American Psychological Foundation, and the American Association of Applied and Preventative Psychology, and served as the President of the American Psychological Association in 1962. An active clinician as well as researcher, he maintained his professional psychology license and was a Diplomate and Board Member of the American Board of Professional Psychology [9].

Contributions

Meehl's work was not just ahead of his time. Rather, in multiple areas of inquiry, he set standards for the profession that are still being strived for some 50 or more years later and thus remain at the cutting edge of the field today. For instance, in 1962 when environmental explanations for the etiology of schizophrenia were predominate, he took the stage at the annual American Psychological Association meeting and offered a presidential address positing that symptoms of schizophrenia result from an underlying neurological condition with a genetic basis [10]. In doing so, he predated current gene-environment paradigms by decades. In 1955, along with Lee Cronbach, he outlined a procedure for measuring psychological constructs that has been largely unmodified since its inception and remains a benchmark lesson for doctoral students in the field [3]. Similarly, his work in the areas of taxonomy, clinical versus statistical prediction, and significance testing are as relevant today as ever, if not more so given the expansion of applied psychology in recent decades [4, 5, 10].

His identification of "schizotaxia" or a schizoid taxon revolutionized the field of psychopathology. Puzzled by the great phenotypic diversity exhibited by patients diagnosed with schizophrenia, Meehl proposed that the seeming heterogeneity of symptoms was actually consistent with a taxonomic model and followed an identifiable and distinct pattern [8]. Demonstrating the existence of such a "taxon" is critical because it supports categorical rather than dimensional distinctions between various diagnoses and thereby sets the stage for positing specific causes, most often biological in nature. For instance, unearthing the schizoid taxon allowed Meehl to propose that schizophrenia had a basis in genetics and that the phenotype was multidetermined, being influenced by genes, nonshared environmental influences, etc. [1]. In doing this work, Meehl developed taxometric procedures that questioned the precision of current diagnostic classifications and offered alternatives to the existing body of statistical procedures used to identify symptom clusters. Taxometrics involve complex mathematical procedures and algorithmic tests and reveal that, in addition to being a psychologist and philosopher of science, Meehl was also a very talented mathematician. The procedures and associated consistency tests developed by Meehl are now widely applied in the study of psychopathology [2, 10].

Along with colleague Lee Cronbach, Meehl helped to set the standards by which we measure and validate measures of hypothetical constructs [3]. In psychology, the focus of study is most typically phenomena that cannot be directly measured or verified, such as intelligence, creativity, personality, and the like. Objective measures like those used in other branches of science (e.g., thermometers, scales, and rulers) do not exist. This hampers progress in the field and has led to questions about whether psychology is indeed a "hard" science. In response, Cronbach and Meehl outlined a systematic process for establishing "construct validity" or the extent to which an instrument actually measures what it claims to measure. Central to this process was the establishment of a "nomological network." That is, to establish that a given measure has construct validity, one would have to propose a theoretical framework for the construct behind the measure, an empirical basis for how it is to be measured, and specific links between the theoretical framework and any empirical findings. Though extraordinarily useful as a heuristic for guiding assessment, Meehl realized that ultimately the process of "evaluating" the extent to which a given measure exhibited construct validity was left to subjective analysis and statistical significance testing. As part of his broader work in metascience, Meehl described the many limitations of traditional null-hypothesis significance testing and offered alternative quantitative models for theory evaluation. For example, he described how various indexes, such as predictive

accuracy, novelty, and reducibility, could be developed and used to compare theories in a more objective, actuarial manner [4]. Questions about traditional significance testing continue to pose major challenges to the field and Meehl's contributions in this area have been credited with perhaps inspiring, and increasing receptivity to, recent developments such as effect size estimates, goodness-of-fit estimates, and investigation of structural models [1].

Not afraid of stirring controversy, Meehl also questioned the subjective nature of clinical decision making [7]. He reasoned that the majority of clinical decisions, such as prognosis and treatment selection, are based on predictions that are made by considering data from various sources, including interviews, tests, and observations. This consideration most often entails "clinical" combinations of the data that are informal, inferential, and subjective. In contrast, he described a "statistical" approach to data combination relying on more formal, mechanical, and algorithmic methods. Partly because of their consistent application of the data combination rules, Meehl argued that the statistical approaches would outperform the clinical approaches in making predictions and he provided supportive evidence in a review of the empirical literature. His conclusion that "heads" were outdone by "formulas" in the vast majority of cases still stands largely unchallenged and his book on the subject [7] has become a citation classic [5].

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Melancholy

►Anhedonia

Mellaril Concentrate®

►Mellaril®

Mellaril®

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Synonyms

Mellaril concentrate®; Mellaril-S®; Thioridazine

Definition

A prescription medication FDA approved for the management of schizophrenia.

Description

This medication is a typical antipsychotic available in an oral tablet, oral solution, or oral suspension.

The recommended starting dose for adults and teenagers is 50–100 mg given one to three times a day. The recommended maximum daily dose is 800 mg. For children 6–12 years of age the recommended starting dose is 10–25 mg given two or three times a day. Dosages for children may be based on body weight and size.

This medication may be taken with or without food. Avoid drinking alcohol and taking antacids within 2 h of taking this medication. Inform your doctor if you have kidney disease, heart disease, history of seizure disorder, or other medical conditions. Mellaril® may cause QTc prolongation, a potentially serious heart problem.

Some side effects are listed here: twitching or muscle movements you cannot control, muscle spasms, increased blinking, sleepiness, blurred vision, dizziness, dry mouth, constipation, and dark urine. Tell your doctor immediately if you notice the following: fainting, loss of balance control, trembling of hands and fingers, or stiffness. This medication may cause lightheadedness when going from a lying or sitting position, so it is recommended to get up slowly. This medication may make you more sun sensitive. Your doctor

may monitor your cholesterol, weight, blood sugar level, heart, mental status, and potassium level.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development

Mellaril® is FDA approved for use in children older than 2 years of age. Children and adolescents will be monitored closely.

Women should let their doctor know if they are pregnant or planning to become pregnant. Talk with your doctor before breastfeeding.

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Mellaril-S®

►Mellaril®

Memorization

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Synonyms

Cognitive structure; Remembrance; Reminiscence; Retention

Definition

Memorization is a mental process that is used to deliberately store items in memory for later recall. Individuals may memorize items such as experiences, names, addresses, and grocery lists for later use.

Description

Memorization does not merely mean creating an accumulation of facts or vocabulary words to be carried in the mind. This stereotype is too simplistic. The knowledge possessed by a reader that facilitates comprehension of written language is a part of long-term memory. It is a remembrance of the sense of past experiences that constructs the foundation of new understandings of texts. Memories are linked in a vast hypertext held within the mind, organized into an intricate and internally consistent working model of the world.

Memorization creates summaries of experiences so that not only is each fact, word, or experience remembered, but they are also categorized within the mind and integrated into a coherent whole allowing new facts, words, and experiences to be ascertained. Chunking information into groups capitalizes on connecting prior knowledge to new knowledge, which enhances learning. Therefore, memorization is a constructive process justifying the summaries of past experiences.

Memorization is aided by discrepant events or emotional connection. Integrating and accessing emotional memory through music, art, and drama creates more links in the mental hypertext and increases the accessibility of information. Memorization must combine information with conceptualization and meaningful practice otherwise it is insufficient.

Principles and techniques used to assist in memorization include:

- Rote learning
- Mnemonic
- Mnemonic link system
- Peg system
- Major system
- Method loci
- Art of memory

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Memory

►Critical Thinking

Memory Strategies

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Synonyms

Cognitive strategies; Learning strategies; Memory techniques; Mnemonic devices

Definition

Memory strategies refer to any of a broad set of techniques that are designed to help one remember. Such strategies range from everyday, external aids (e.g., using a planner) to internal memory strategies (e.g., mnemonic devices) that facilitate storage and retrieval from long-term memory.

Description

External Memory Strategies

Memory strategies can be divided into two main categories: *external* and *internal*. External memory strategies tend to be everyday things we do that cue us to remember things [4]. McPherson [9] lists several common ones, including: using a calendar or blackberry, placing things in conspicuous places, jotting down reminder notes, making a shopping list, asking someone to help you remember, and setting a timer.

Internal Memory Strategies

Simple techniques: Internal memory strategies take place mentally. Perhaps the most familiar of these techniques is *rehearsal*. Repeating something over and over in working memory is one way to retain information and to facilitate its storage in long-term memory. While rote rehearsal is often discounted in favor of other memory techniques involving elaboration, rehearsal is none-the-less a natural way for us to store information in memory. Further, rehearsing something beyond initial acquisition (i.e., *overlearning*) helps to stamp in the information. In this vein, testing oneself (i.e., *retrieval practice*) seems to be an especially effective technique, with *expanding retrieval practice* being an even better approach [2]. Expanding retrieval practice means testing oneself at ever-increasing intervals.

Another common internal technique for, say, trying to recall someone's name, is going down the alphabet to see if a letter "strikes a chord." While this approach provides a degree of cuing, simply saying the letters verbatim may not be enough of a clue to recover the name from long-term memory storage.

Mnemonic devices: Mnemonic devices are specific, cognitive cuing strategies designed to aid memory. They change difficult material into more easily remembered material [11]. Bellezza [1] divided mnemonic devices into two general categories: *encoding mnemonics* and *organizational mnemonics*. Encoding mnemonics facilitate paired-associate learning, such as associating unfamiliar terms with their definitions, or associating names with faces. In this regard, popular encoding mnemonics are the *keyword method* and the *face-name mnemonic*, respectively. In particular, the keyword method has proven to be a versatile and effective technique in a variety of school-related memory tasks, including the learning of states and their capitals (e.g., [5]).

Organizational mnemonics tie together several bits of information in an ordered manner to facilitate serial learning. A simple example of an organizational mnemonic is the popular *first-letter mnemonic*. Students often learn the order of the colors in the spectrum by remembering ROY G. BIV (i.e., red, orange, yellow, etc.). Additional organizational mnemonics include the *pegword method* and the *method of loci*. These systematic techniques provide a set of visualizable "pegs" or "locations," respectively, wherein to store a list of ordered information by way of interactive images. Mental imagery serves as the "glue" in many mnemonic techniques to hold things together (e.g., [8]).

Relevance to Childhood Development

As Thorne [13] has observed, the "memory demands for school-age children are much greater than they are for adults." Thorne goes on to say that "an effective and efficient memory is critical for school success." Indeed, research has shown that more successful students tend to make use of learning and memory strategies. And, knowledge and use of such strategies is closely tied to whether parents and educators have encouraged strategy use. For this reason, Pressley and McCormick [12] propose that memory strategies be taught directly in schools.

A particular limitation of children in using imagery-based memory strategies is that, through the age of 8, children have difficulty in generating images linking two things together [10]. Additional difficulties have to do with *maintenance* and *transfer*. Difficulty in maintenance means that children may not continue to use a particular strategy, even after experiencing first-hand how useful it is. Transfer has to do with using a previously acquired

memory strategy in a situation somewhat different from the original one in which the strategy was applied. Children (and even college students) have difficulty in this regard. Despite these difficulties, encouraging the use of memory strategies in the classroom has much to recommend it (e.g., [5]).

A variety of memory improvement books are available, including Lorayne and Lucas' [6] classic, *The Memory Book*, Higbee's [3] *Your Memory: How It Works and How to Improve It*, and McPherson's [9] *The Memory Key: Unlock the Secrets to Remembering*. McPherson also has a helpful website on memory at www.memory-key.com/index.htm. In terms of special education applications, Mastropieri and Scruggs [7] have written a guide titled *Teaching Students Ways to Remember: Strategies for Learning Mnemonically*.

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Memory Techniques

▶Memory Strategies
▶Mnemonic Device

Mendelian Genetics

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Synonyms

Law of independent assortment; Law of segregation; Mendelian inheritance

Definition

Mendelian inheritance refers to the properties of inherited single traits, as described by the law of segregation and the law of independent assortment.

Description

Gregor Johann Mendel (1822–1884) was an Austrian monk who conducted botanical experiments in plant hybridization in the garden of his monastery. Although a contemporary of Charles Darwin (1809–1882), Mendel's [2] published work *Experiments in Plant Hybridization* (1865) failed to attract scientific notice until 1900, when it then became apparent that Mendel's genetic discoveries helped to explain the mechanisms of inheritance necessary for Darwin's Theory of Natural Selection.

Mendel experimented with seven easily identifiable traits of common flowering pea plants. His logic and methodology are elegant. First, he bred several consecutive generations of pea plants via self-fertilization to ensure that the observed traits were constant and the respective plants were pure strains. Then, he would cross-fertilize the plants and record the appearances of the offspring. This first generation of offspring was referred to as the first filial or F_1 generation. He would cross-fertilize examples of the F_1 generation and record the appearance of the new offspring once more. This second generation of offspring was referred to as the second filial or F_2 generation. Mendel would then breed several subsequent generations of pea plants using self-fertilization, repeating the process for all seven traits he studied. While other researchers had attempted the study of plant hybridization before, Mendel

was the first to quantify his results, thereby discovering a constant rate of segregation in the F_2 generation later known as the Mendelian ratio.

As an example, consider that Mendel cross-bred pea plants with purple and white flowers. In the F_1 generation, all the flowers appeared purple (and not pink as other researchers might have predicted). In the F_2 generation, three out of four of the plants had purple flowers, and one out of four had white flowers. The white flower trait appeared to vanish entirely in the F_1 generation, only to reappear in a predictable ratio in the F_2 generation. From this, Mendel inferred that the trait never truly vanished, but was present and not expressed in the F_1 generation. This inference was an important scientific step, because in Mendel's time chromosomes were not understood and DNA had not yet been discovered. Mendel made his breakthrough by studying the careful tabulation of his data, making logical inferences, and replicating his results.

Mendel discovered that genes possess alternate forms known as alleles. Some alleles will be displayed in an organism whenever they are present; these are referred to as "dominant." Some alleles will only be displayed in an organism when both copies of the gene are present; these are referred to as "recessive." Thus, Mendel made an important distinction between genotype (the genetic makeup of a living thing) and phenotype (the appearance of a living thing). Just because an organism displays a trait does not mean that it is pure; living things whose alleles match are called "homozygous" and living things with different alleles are called "heterozygous." According to the Mendelian ratio, in the F_2 generation three out of four offspring will display the dominant phenotype and is referred to as the law of segregation.

Furthermore, Mendel experimented with combining the seven different traits. He learned that the inheritance of each trait was independent of the inheritance of other traits. In other words, possessing a dominant genotype for one trait does not influence the probability of possessing a dominant genotype for a different trait. This is referred to as the law of independent assortment.

Not all traits can be understood within the framework of Mendelian inheritance. The traits Mendel studied were all single-factored, whereas most traits in most organisms are multi-factored and subject to the influence of multiple gene interactions. Furthermore, a variety of traits are sex-linked. In humans, this means that the trait occurs on the X version of the sex chromosome and will be displayed either if it is present on both members of the X chromosome pair (if the organism is female, possessing an XX pair) or if the organism is male (thereby possessing an XY chromosome pair by definition).

Relevance to Childhood Development

The study of Mendelian inheritance is important for students of childhood development because it provides the essential building blocks for understanding more complex patterns of inheritance. While most human traits cannot be reduced to a single gene, several childhood diseases (such as Tay-Sachs disease and cystic fibrosis) are recessive and inherited via Mendelian genetics.

Acknowledgement

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M

Mendelian Inheritance

▶Mendelian Genetics

Menrium

▶Chlordiazepoxide

Mental Ability

▶Mental Age

Mental Ability Testing

▶Intelligence Testing

Mental Age

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Synonyms

Academic ability; Intellectual ability; IQ; Mental ability

Definition

Mental age, often abbreviated MA, is a measure of mental ability as determined by intelligence tests.

Description

Mental age (mental level) was developed as a means of measuring a child's mental ability using intelligence tests. The concept was devised by Alfred Binet and his colleague Theodore Simeon, who had been commission by the French government to investigate education for children with mental disability and specifically, to develop a method of distinguishing the normal child from the child with intellectual disability whom would not benefit from normal schooling [3].

The subsequent scales that were developed by Binet and Simeon used a variety of tests items that they selected as being suitable to assess a particular ability. The test performance of 300 normally functioning French children between 3 and 13 years was used to determine the age at which a child could be expected to pass a particular test item [4]. The test levels were determined by whether 80–90% of normal children of this age could pass the test items [4]. For example, items passed by the majority of 4 year olds were placed on a 4 year level, whereas those items passed by the majority of 5 year olds were placed on a 5 year old level. Using the different levels of test items that they had developed, a child's mental level could then be determined as the highest mental level achieved.

However, children more often had a scatter of scores. Therefore the concept of basal was often used, and was the highest level at which all tests were passed (basal level), with months of credit added for areas of where the child had passed at a higher age level [2]. The term mental age was substituted for mental level, as it was considered an easier concept [2].

The first major revision of the testing developed by Binet and Simeon was conducted by Lewis Terman [5] who translated the test into English, and developed the test items for American use, renaming it the Stanford – Binet. At this point the concept of an Intelligence Quotient (IQ) was developed [3]. An IQ could be generated by dividing the mental age of the child by the child's actual age and multiply the result by 100. The concept of IQ is now most commonly used to identify the level of intellectual functioning of a child [3].

Relevance to Childhood Development

The development of the concept of mental age and IQ has had a significant impact on educational methods used, and also on how many of the existing childhood psychiatric disorders are conceptualized. In terms of benefits, the evaluation of mental age and IQ provides an objective and standardized way to assess a child's overall intellectual ability. Further, it enables a child's strengths and weaknesses to be identified, and thereby providing a means to target appropriate intervention and or extension. The identification of a child's IQ or mental age provides a common language for professionals and is a core diagnostic feature of a many of psychiatric disorders that occur in childhood. That is, for example, diagnosis of attention deficit hyperactivity disorder requires that the child's behavior be more excessive than would be expected for their mental age. Moreover IQ is also used to determine whether a child's intellectual deficits are of sufficient severity to warrant a diagnosis of mental retardation [1]. However, there are also a number of disadvantages associated with the concept of mental age and IQ. Many tests contained in these batteries have been criticized as culturally insensitive [4]. This is an extremely important issue when one considers the impact that an IQ score can have on a child's educational opportunities. Further, as has been pointed out previously, intelligence testing provides a "snap shot" of an individuals functioning, which may be affected by other factors such as mood and motivation.

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Mental Computation

▶Computational Skills

Mental Deficiency

►Mental Retardation
►Mild Mental Retardation
►Moderate Mental Retardation
►Profound Mental Retardation
►Severe Mental Retardation

Mental Disorders

►Psychological Disorders
►Psychopathology

Mental Health

►Psychological Disorders

Mental Health Counselors

►Child Counselors
►Counselors

Mental Illness

►Psychological Disorders
►Psychopathology

Mental Illness/Disorder

►Emotional Disturbance

Mental Mapping

►Abstract Mapping

Mental Models

►Adult Attachment Interview (AAI)

Mental Retardation

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Synonyms

Cognitive impairment; Developmental disabilities; Intellectual disability; Mental deficiency

Definition

Mental retardation is defined as significantly subaverage ►intellectual ability and concurrent delays in ►adaptive functioning which present prior to the age of 18.

Description

The term "Mental Retardation" has come to be associated with a negative stigma; therefore, it is now commonly referred to as an "intellectual disability." Mental retardation (MR) or intellectual disability is characterized by both the American Association for Mental Disorders (AAMR) and the Diagnostic and Statistical Manual-Fourth Edition-Text Revision (DSM-IV-TR) as significantly subaverage intellectual ability and concurrent delays in adaptive functioning, which present prior to the age of 18 [1, 2, 3]. Adaptive functioning is generally defined as one's general independence level (i.e., independent self care, communication, socialization, coping, academic functioning, work functioning, etc.) given age expected developmental population norms, which should be based on the individual's sociocultural and community background [8, 9]. Standardized measures of adaptive behavior, such as the Vineland Adaptive Behavior Scales-Second Edition and Scales of Independent Behavior – Revised, are often used to assess adaptive behavior through caregiver report or interview. The DSM-IV discusses five categories or degrees of severity that describe the individual's level of intellectual impairment. The appropriate category for an individual is based upon his or her performance on one of several intelligence measures, such as the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) or Stanford Binet Intelligence Scales – Fifth Edition. Significantly subaverage intellectual functioning

is defined as an IQ score below 70, which corresponds to approximately two standard deviations below the population mean. These categories include: mild mental retardation (IQ score: 50–55 to 70), moderate mental retardation (IQ score: 35–40 to 50–55), severe mental retardation (IQ score: 20–25 to 35–40, profound mental retardation (IQ score: below 20–25), and severity unspecified (strong belief of intellectual impairment, although the person cannot be assessed through standard intelligence testing) [2]. The AAMR definition is similar; however, it places further emphasis on examining each individual's limitations and conducting a valid assessment that considers the individual's context (i.e., age, peers, cultural background, communication abilities, sensory skills, motor skills, and behavioral factors). It also places emphasis on examining the individual's strengths, level of needed support, and the importance of recognizing that with intervention/support the individual's overall functioning will improve [1].

Prevalence

The prevalence of MR is thought to range between 1 and 3% of the general population. Approximately 85% of those with MR fall within the mild range, 10% fall within the moderate range, 3–4% fall within the severe range, and 1–2% fall within the profound range. MR is more prevalent in males. The male to female ratio is approximately 1.5:1 [2]. There is no known difference in prevalence of MR due to genetic factors in the different socioeconomic statuses. However, MR due to environmental factors, such as malnutrition or premature birth is more common among individuals in the lower socioeconomic range [2].

Etiology

MR has been linked to many known etiologies while many continue to be unknown. It is linked to several genetic disorders, including Tay-Sachs Disease, Tuberous Sclerosis, Fragile X Syndrome, and Down's Syndrome. It is also associated with ▶pervasive developmental disorders, including, Autistic Disorder, Rett's Disorder, and Childhood Disintegrative Disorder [8, 9]. A combination of genetic and nutritional factors during the prenatal period or in early childhood is also linked to the development of MR [6]. Problems during the prenatal period include, but are not limited to, hypoxia, fetal malnutrition, maternal drug use, untreated maternal phenylketonuria, fetal stroke, chemical exposure, prematurity, low birth weight, viral infections, and trauma [4, 8]. Problems during early childhood include, but are not limited to, infection, toxic exposure, injury, and neglect/deprivation. The most common causes of MR are Down's Syndrome, Fetal Alcohol Syndrome, Fragile X Syndrome, and Velocariofacial syndrome [4, 8]. While there are numerous known etiologies of MR, no definitive etiology can be determined in approximately 30–40% of individuals with MR [2].

Associated Features

The behavior patterns and personality characteristics of those with MR are not consistently different from the behavior and personality of those with average cognitive ability. However, often times the behavior and personality characteristics of individual's with MR more closely match the characteristics of those with a younger chronological age [9]. For instance, those without functional communication may display aggressive behavior in an attempt to communicate, which is often seen in children who have not yet developed language [2]. The specific behavioral and cognitive patterns seen in individuals with MR often correlate more highly with the specific etiology, rather than the general diagnosis of MR [5]. However, various life experiences that decrease one's motivation and self esteem may be more likely for those with MR, which in turn may lead to a number of negative outcomes affecting many areas of one's personality, behavioral style, and subsequent life experiences [9]. The prevalence of comorbid disorder is significantly higher than within the general population. This may be due in part to a common etiology, although this varies case by case. The most common comorbid disorders are Attention-Deficit/Hyperactivity Disorder, Mood Disorders, Pervasive Developmental Disorders, Stereotypic Movement Disorder, and Mental Disorders Due to a General Medical Condition [2].

Relevance to Childhood Development

Children with MR typically show global delays in most areas of development; including communication, gross and fine motor, self-care, socialization, academic, and coping skills. The level of delay typically correlates with the severity of the child's cognitive impairment and subsequent age at diagnosis. An appropriate assessment of cognitive functioning, needs assessment for treatment, and subsequent intervention are vital to assist the child in meeting his or her optimum potential. The Individuals with Disabilities Act (IDEA, 1997) continues to improve the educational opportunities for children with MR and other disabilities. It requires that each child receive an appropriate education/curriculum with support in the least restrictive environment.

During early childhood, prior to age 3, each state is required to provide intervention. This begins by developing an individualized family service plan (IFSP), which outlines specific goals and interventions for a given child [7].

Once the child reaches the age of 3, the public school system staff and parents will develop an individualized education plan (IEP), which outlines goals (i.e., academic, social, vocational, etc.) and interventions to assist the child in reaching those goals [7]. The type of environment depends on the needs of the child. For many children with mild MR this environment may be one of full inclusion or partial inclusion with their typical peers, while children with more significant impairments may participate in a self-contained classroom. It is always necessary to consider the benefits and costs of each child's educational plan for their learning [8].

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Mental Retardation with Osteocartilaginous Abnormalities

►Coffin-Lowry Syndrome

Mentalizing

►Mindblindness

Meprobamate (Mil-Town)

►Depressants

Mercury

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Synonyms

Hydrargyrum; Quicksilver

Definition

Mercury is a chemical element with the symbol Hg, named for the Latin *Hydrargyrum*, meaning watery or liquid silver. Mercury, with an atomic number 80, is a heavy, d-block metal, and is the only metal liquid at standard conditions for temperature and pressure. Though used for the manufacture of industrial chemicals, electrical and electronic applications, and thermometers, mercury is now recognized as a neurotoxin and has been slowly fazed out of use by changes to health and safety regulations noticeable hazard to human health and the environment.

Description

Mercury has an atomic number of 80, indicating the presence of 80 protons and 80 electrons in a neutral atom, and an atomic weight of 200.59 g/mol. Mercury is located in period number 6, group number 12, and is a d-block transitional metal with an Electron configuration [Xe] 4f14 5d10 6s2 and two valence electrons. Mercury is a liquid at room temperature, with a melting point of 234.32 K (−38.83°C or −37.89°F) and a boiling point of 629.88 K (356.73°C or 674.11°F). The element has a density of 13.534 g/cm^3, a Heat of fusion of 2.29 kJ/mol, a Heat of vaporization of 59.11 kJ/mol, and a Specific heat capacity (at 25°C) of 27.983 J/mol·K.

There are seven stable isotopes of mercury with Hg-202 being the most abundant (29.86%). The longest-lived radioisotopes are ^{194}Hg with a half-life of 444 years, and ^{203}Hg with a half-life of 46.612 days. Most of the remaining radioisotopes have half-lives that are less than a day. Mercury dissolves to form amalgams (compounds containing mercury) with gold, zinc and many metals. When heated, mercury also reacts with oxygen in air to form mercury oxide, which then can be decomposed by

further heating to higher temperatures, and reacts with atmospheric hydrogen sulfide. Mercury does not react with most acids, such as dilute sulfuric acid, though it does react with strong oxidizing acids such as concentrated sulfuric acid and nitric acid. Mercury reacts with solid sulfur flakes, which may be used in mercury spill kits to absorb mercury vapors (spill kits also use activated charcoal and powdered zinc).

Prevalence

Mercury is an extremely rare element in the Earth's crust, having an average crustal abundance by mass of only 0.08 ppm. Mercury ores, however, can be extraordinarily concentrated considering the element's abundance in ordinary rock, with the richest mercury ores contain up to 2.5% mercury by mass, and even the leanest concentrated deposits are at least 0.1% mercury (12,000 times average crustal abundance). Natural sources such as volcanoes are responsible for approximately half of atmospheric mercury emissions. The human-generated half comes primarily from stationary combustion due to coal-fired power plants (65%). 11% of the mercury emissions are due to gold production, and 3% is a result of waste-disposal and incineration.

Uses

Mercury is most well known for its use in thermometers, though it is also used in other types of scientific apparatuses. Mercury-vapor lamps have been used as a source of ultraviolet light and for sterilizing water. Mercury combines with all the common metals except iron and platinum to form alloys that are called amalgams, often used in dentistry. This element is also used commercially for the creation of disinfectants and germicides, the pigment vermillion, and electrodes and electrical systems.

Because of the extremely toxic effects of mercury, the use of the metal and its compounds has been reduced in several industries, including pharmaceuticals, dentistry, and agriculture.

Toxicity

Mercury is a toxic and hazardous substance that can be inhaled and absorbed through the skin and mucous membranes, or through direct ingestion. Short-term, limited contact with mercury can cause acute symptoms such as bleeding gums, vomiting, and stomach pain. Mercury poisoning, due to prolonged and severe mercury exposure, is potentially fatal and can cause irreversible brain, liver, and kidney damage. Research has demonstrated that unsafe levels of mercury can cause neurological damage, particularly in young children and fetuses. Repeated exposure to small amounts mercury can also result in later mercury poisoning due to the ability for the element to accumulate in the cells of the body.

Ingestion can occur through contamination of the food sources. Concern over the potential health hazards of mercury levels in the environment led the United States Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) to issue consumption guidelines in March 2004, indicating notice that pregnant women, children, nursing mothers, and women who may become pregnant should not eat certain foods known to contain some levels of mercury, including shark, swordfish, king mackerel, or tilefish.

Relevance to Childhood Development

Studies have demonstrated that exposure to mercury during fetal development can have serious effects on brain and body development. In a study of a widespread mercury exposure in Minamata, Japan, pregnant women who consumed the contaminated fish manifested mild or no symptoms but gave birth to infants with severe developmental disabilities, including cerebral palsy, mental retardation, and seizures.

Mercury exposure may be more commonplace than assumed. Neonates and infants may be particularly sensitive to exposure. Toddlers may come in contact with or ingest mercury from spills (such as from thermometer breakage) that collect on the floor after inappropriate cleaning. The Food and Drug Administration has also indicated that on the basis of current fish consumption patterns among pregnant women of childbearing age in the United States, over 60,000 children are born each year at risk for adverse neurodevelopmental effects due to mercury exposure.

While there is negligible evidence that the low-level mercury in some vaccinations can lead to later brain damage, some members of the global community are forgoing having their children immunized fearing exposure to mercury from the vaccines. Such practices occurring on a large enough scale, however, could seriously compromise disease control, leading to a greater risk to child health and development than mercury might present.

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Mercy-Killing

►Active Euthanasia

Messenger RNA

Messenger RNA or ribonucleic acid is a molecule of RNA encoding a chemical blueprint for protein products. Messenger RNA is transcribed from a DNA template and carries coding information to the sites of protein synthesis known as ribosomes. In messenger RNA as in DNA, genetic information is encoded in the sequence of nucleotides arranged into codons consisting of three bases each. Each codon encodes for a specific amino acid. This process also requires transfer RNA which mediates recognition of the codon, provides the corresponding amino acid and ribosomal DNA which is the central component of the ribosomes protein manufacturing machinery.

Meta-Analysis

Synonyms

Meta-analytic review

Definition

In statistics, a meta-analysis or meta-analytic review synthesizes and describes the results from a large number of studies on a common topic. It provides a summary of the existing research literature in a non-biased manner by using a quantitative approach.

Description

Meta-analysis was first employed by the field of psychology to assist in determining the effectiveness of interventions, but has been widely applied in the fields of medicine and education.

To conduct a meta-analysis the investigator must:

- define the range of years from which to draw studies, typically a 10–20 year time period
- define the problem to investigate
- define the participants, (i.e., age, diagnoses, geographical region)
- specify the treatment or intervention to evaluate
- collect all the published articles that meet the criteria through rigorous research
- conduct a statistical analysis

The statistical analysis compares the pre-treatment or baseline data to the post-treatment data. This requires the use of z-score transformations of the data which set the baseline data points to zero. This procedure allows for comparisons between baseline and post-treatment data from various dependent measures. The transformations also allow the researcher to compare treatments by effect size, a measure of the strength or magnitude of the independent variable on the dependent variable. More simply, an effect size assigns a numerical value that describes how effective a treatment is.

Meta-analytic results are typically reported in effect sizes. There are several statistical methods used to report effect sizes. The most common is *Cohen's d*, which compares the baseline phase and treatment phase means. It is calculated by subtracting the mean of the treatment phase from the mean of baseline phase and dividing this value by the standard deviation at baseline. Values close to zero suggest that the intervention or independent variable had little effect on the dependent variable, whereas values closer to 1.0 describe very large changes possibly attributable to the independent variable or intervention. Other statistical methods for calculating effect sizes include Percentage of Non-Overlapping Data Points (PND), Busk and Serlin's No Assumptions Method, and Hierarchical Linear Modeling. Each approach has strengths and weaknesses; some are known to be more strict and thus produce conservative estimates while others may overestimate effects. This is a common criticism of analyzing effect sizes.

Another problem with meta-analyses is the "file drawer problem". This refers to the fact that most

published research papers only report positive intervention findings, leaving studies with null findings unpublished. Therefore, when one goes to conduct a meta-analysis the results may reflect only positive intervention results, failing to account for an unknown number of studies suggesting less favorable results. Nevertheless, meta-analysis is a powerful tool for summarizing results across studies.

Meta-Analytic Review

►Meta-Analysis

Metacognition

Synonyms

Critical thinking; Metacognitive awareness; Metacognitive strategies

Definition

Simply defined, metacognition is thinking about one's own thinking. More technically, metacognition involves the ability to evaluate one's own comprehension of subject matter and use that evaluation to predict how well one might perform a task. It refers to our understanding and control over our own thinking processes including awareness, control, and regulation.

Description

Considered a subcomponent of metacognition, metamemory involves reflecting on our own memory processes with the goal of improving our memory. Metacognitive abilities appear to increase with age through early adulthood and are associated with improvements in encoding and retrieving memories and processing speed. The allocation of attention and ability to hold and manipulate information in one's working memory are also heavily dependent on metacognitive thinking strategies. For example, these strategies include mnemonic devices, rehearsal, and response inhibition. In the domain of cognitive neuroscience, metacognitive monitoring and control has been viewed as a function of the prefrontal cortex, which receives and monitors sensory signals from other cortical regions and implements control.

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Metacognitive Awareness

►Metacognition

Metacognitive Strategies

►Metacognition

Metadate CD (Methylphenidate)

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Synonyms

Metadate CD®; Metadate ER®; Methylphenidate

Definition

Metadate® is a stimulant medication FDA approved for children 6 and older for the treatment of ADHD.

Description

This medication is a psychostimulant. Similar to most other stimulant medications, the active ingredient in Metadate® is methylphenidate. The medication is available in two forms of extended release capsules. Metadate CD® provides 30% of the methylphenidate dose by immediate release beads and 70% by extended-release beads and is reported to have an 8 h duration of action. Metadate CD® (available in 10, 20, and 30 mg) capsules can be opened and the medication spheres can be sprinkled into applesauce. Metadate® is also available in a slowly absorbed tablet (Metadate ER®) with methylphenidate incorporated in a wax matrix tablet, allowing gradual diffusion reported to have a 6–8 h duration of action. Metadate ER® (available in 10 and 20 mg) is usually administered twice daily and must be taken whole.

There is no universally agreed-upon method for dosing with stimulants; doses are individualized according to the child's clinical response. Some clinicians utilize the

child's weight as a guideline and others begin at the approved dose range until a clinical response occurs. The approved dosage starts at 20 mg and increases by 10–20 mg/day at weekly intervals as needed. The maximum daily dose of Metadate® is 60 mg.

Possible side effects include insomnia, appetite loss, weight loss, rebound hyperactivity, headache, tachycardia, precipitation or exacerbation of tic disorders, and possibly growth delay.

Relevance to Childhood Development

Methylphenidate, the active ingredient in Metadate®, is the most commonly used stimulant prescribed for children with ADHD. Beneficial effects of psychostimulants may include reduced hyperarousal, reduced motor restlessness, enhanced concentration, and less aggressive and antisocial behavior. Metadate® is not FDA approved for children under the age of 6.

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Metadate CD®

►Metadate CD (Methylphenidate)

Metadate ER®

►Metadate CD (Methylphenidate)

Metalloprotein

►Hemoglobin

Methaqualone (Quaalude)

►Depressants

Methylphenidate

►Metadate CD (Methylphenidate)
►Ritalin®
►Stimulant Medications

Methylphenidate (Generic)

►Concerta® (Methylphenidate)

Methyltheobromide

►Caffeine

Methyprylon (Noludar)

►Depressants

Microcephaly

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Definition

Microcephaly is a cephalic disorder, or a disorder resulting from damage or abnormal development of the developing nervous system [6]; it is a clinically diagnostic term assigned to a head circumference significantly smaller then what is considered normal or average for a given individual's sex and age [11]. There is some disagreement as to the defining features of a diagnosis of microcephaly. Abuelo [1] stated most researchers consider microcephaly to be present when person's head circumference is two

standard deviations (−2 SD) below normal for a given age and sex. Others argue that a head circumference of three standard deviations (−3 SD) below the age and sex appropriate norm is the cut-off point for defining microcephaly [3, 10, 11]. The disagreement about diagnostic criteria also leads to differences in the estimates of its incidence. If the criterion of −2 SD is adopted, then roughly 2% of the population has microcephaly; adhering to the −3 SD criteria means that only about 0.1% of the population display microcephaly [1].

Deficits of Brain Development

Individuals born with this cephalic disorder display a significantly smaller ►brain; head circumference is a useful but indirect measure of the size of the brain [3]. The brain that is present is missing the ►cerebral cortex (the neocortex) of the cerebral hemispheres, the greatest share of the mass of the cerebral hemispheres [2]. Microcephaly can be separated into primary microcephaly in which the brain fails to reach expected correct size in prenatal development and secondary microcephaly in which the brain does attain an expected normal size at birth but fails to subsequently undergo normal postnatal brain development and growth [10]. Primary microcephaly is thought to be due to insufficient cellular division to produce the appropriate number of brain neurons during prenatal neurogenesis and secondary microcephaly is the result of a significantly reduced growth and branching of neuronal fibers, primarily the dendrites and a reduction in the number of synaptic connections amongst the neurons [10]. Hence, primary microcephaly is considered to be present at birth or ►congenital and secondary microcephaly has a later onset [1]. Some researchers have proposed that the descriptive term "primary" should be used to imply a genetic causation while the term "secondary" should be reserved for cases where the etiology is environmental [7]. This distinction, however, cannot always be maintained so others have concluded that these terms should not be used and instead the microcephaly be classified in terms of its onset (present at birth or postnatal) and its presumed etiology (genetic or environmental [1]. There are multiple possible genetic conditions as well as environmental variables that can lead to microcephaly [1, 10].

The clinical significance of the reduced brain size is that microcephaly is highly correlated with mental retardation [3], however individuals with a head circumference of −3 SD and normal intelligence have been occasionally reported [11] but individuals with a head circumference of −4 SD (or less) and normal intellectual ability are exceedingly rare [9, 11].

A website maintained by the National Institute of Neurological Disorders and Stroke (the NINDS) describes anencephaly in the following:

Etiology

Microcephaly is a medical condition in which the circumference of the head is smaller than normal because the brain has not developed properly or has stopped growing. Microcephaly can be present at birth or it may develop in the first few years of life. It is most often caused by genetic abnormalities that interfere with the growth of the cerebral cortex during the early months of fetal development. It is associated with Down's syndrome, chromosomal syndromes, and neurometabolic syndromes. Babies may also be born with microcephaly if, during pregnancy, their mother abused drugs or alcohol, became infected with cytomegalovirus, rubella (German measles), or varicella (chicken pox) virus, was exposed to certain toxic chemicals, or had untreated phenylketonuria (PKU). Babies born with microcephaly will have a smaller than normal head that will fail to grow as they progress through infancy. Depending on the severity of the accompanying syndrome, children with microcephaly may have mental retardation, delayed motor functions and speech, facial distortions, dwarfism or short stature, hyperactivity, seizures, difficulties with coordination and balance, and other brain or neurological abnormalities. Some children with microcephaly will have normal intelligence and a head that will grow bigger, but they will track below the normal growth curves for head circumference [5].

A website maintained by the Centers for Disease Control provide standardized growth curves of head circumference for infants from birth up to age 3 at http://www.cdc.gov/growthcharts. As stated above, the clinical significance of microcephaly is that the reduced head circumference is likely accompanied by mental retardation, with more severe retardation being the product of more significant reduction in brain size [6]; there are however rare cases of individuals with greatly reduced brain size not only being spared retardation but having normal intelligence [9]. While no treatment can restore brain size [5] the symptoms of mental retardation, hyperactivity and other behavior problems can be remediated with applied behavior analytic interventions [4, 8].

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Microevolution

►Darwin's Theory of Natural Selection

Midbrain

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Synonyms

Brain stem

Definition

The Midbrain is one portion of the brainstem that contains the Tectum and Tegmentum, which together coordinate visual and auditory information to assist in the regulation of spontaneous movement.

Description

The Midbrain represents one of three divisions of the brain, in addition to the Hindbrain and Forebrain. Anatomically, it lies just above the brainstem and just below the Diencephalon, which contains the Hypothalamus and Thalamus [6]. From a functional standpoint, the midbrain has been linked to spontaneous movement in response to visual and auditory stimuli as well as aspects of other automatic and voluntary movements ranging from grooming to behaviors such as standing, walking, turning, jumping, climbing [4].

The Midbrain is made up of two structures called the Tectum and Tegmentum [6]. The tectum is also made up of two structures known as the Inferior and Superior Colliculi. Whereas the Inferior Colliculi coordinates aspects of hearing, the Superior Colliculi is more prominently involved in the coordination of vision [4]. The two colliculi also influence reflexive actions. Specifically, the Inferior Colliculi corresponds with auditory reflexes such as orienting oneself to a loud noise, whereas the Superior Colliculi corresponds with visual reflexes such as blinking [2].

The Tegmentum is also made up of two structures called the Substantia Nigra and Red nucleus, which are both crucial motor nuclei [2]. While the Substantia Nigra is part of the Tegmentum, it is often viewed as part of the Basal Ganglia due to its' close ties with the functioning of this region. Please see Basal Ganglia for more in-depth description. Specifically, the Substantia Nigra is crucial to motor activity as it represents a site of origin of the vast majority of Dopamine-containing neurons within the system which help initiate movement [1]. As a result, depletion of the Substantia Nigra leads to a corresponding deficit in Dopamine which, in turn, leads to a lack of excitatory action and thus a lack of motor initiation. This is best exemplified in Parkinson's disease. In this disease, the Substantia Nigra deteriorates. As this occurs, there is a lack of movement initiation because of low Dopamine levels. In which degradation of the Substantia Nigra leads to a paucity of movement due to diminished excitation and thus greater inhibition, in turn corresponding with the diseases bradykinetic (slowed motor movement) manifestations.

Developmentally, the midbrain begins to grow around the 27th week of the fetal development. As this area begins to activate, the fetus will demonstrate reflexive responsiveness to vibration and acoustics. While the process begins at the 27th week, the colliculi continue to develop up until the 36th week. This allows the infant to more easily make auditory discriminations and react to sound. This has been demonstrated in infants' heart rates differing in

response to their mother's voice over other voices (i.e., auditory discrimination) as well as in reflexive head turning to sound heard in the womb [5]. While these reflexes remain throughout childhood, in some instances they weaken as purposeful movement predominates, although some, such as reflexive blinking, remain a strong reflex throughout the lifespan.

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Midpoint

►Norms

Milan Therapist

►Family Therapist

Mild Mental Retardation

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Synonyms

Cognitive impairment; Developmental disabilities; Intellectual disability; Mental deficiency

Definition

Mild mental retardation is defined as significantly subaverage ►intellectual ability, which ranges between 50–55 and 70, and concurrent delays in ►adaptive functioning that present prior to the age of 18.

Description

According to the *Diagnostic and Statistical Manual- fourth edition-text revision* [2], mild mental retardation (MR) is characterized by individuals with cognitive impairments that correspond to an IQ score between 50–55 and 70 and deficits in adaptive functioning that present before the age of 18. Mild MR is the most common type of MR; approximately 3% of the general population has mild MR [5]. Approximately 85% of individuals with MR fall within this range.

Relevance to childhood development

Children with mild MR often are not diagnosed until later childhood, as they typically develop minimal impairments in communication, social skills, and motor skills during early childhood [1, 2, 6]. However, they may have mild developmental delays in the areas of language development, motor development, self-care skills, early academic skills, social skills, and coping skills during early childhood [1, 3, 4]. Children with mild MR often are able to participate in an inclusion classroom with their typical peers [6]. By late adolescence most teens with mild MR are able to acquire academic skills up to a sixth grade level; however, they are usually not able to acquire high school level material and need special education which focuses on vocational training [2, 6].

During adulthood, individuals with mild MR are often capable of living independently or in supervised settings. With appropriate vocational training, individuals with mild MR typically only need intermittent to limited support in the employment setting. They may need supervision, guidance, and assistance particularly during times of stress [2]. Employment opportunities have significantly increased for individuals with mild MR during the past several decades due to increased awareness within the general community and federal policies, such as the Americans with Disabilities Act (ADA), which promotes employment for those with disabilities. [5].

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Milgram, Stanley

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Life Dates

1933–1984

Educational Information

Milgram attended Queens College as an undergraduate and earned his Ph.D. at Harvard.

Accomplishments

Milgram was a professor at Yale, Harvard, and the City University of New York, where he ultimately earned his tenure and spent the bulk of his academic career. Milgram worked within the conceptual social psychology framework of his mentor Solomon Asch (1907–1996), and researched topics such as conformity, factors that influence obedience and disobedience, and the unspoken norms that define city dwelling. Situationism was his primary theoretical influence.

It was at Yale in the early 1960s that Milgram conducted his most famous research, which would later be summarized in his book *Obedience to Authority: An Experimental View* (1974) [11]. Milgram designed an ingenious experiment in which naïve adult male participants recruited from the general community, and each tested individually, believed they were delivering painful and sometimes lethal electrical shocks to a fellow research participant in a memory study. In actuality, the perceived victim in the study was an actor (or confederate) paid by the researcher to feign the effects of electrical shock. As part of the script as reproduced in its entirety in *Obedience to Authority*, the actor informed the research participant near the beginning of the study that he had been diagnosed with a heart condition. All the coercion in the study came from adherence to role playing and norms, yet a surprising number of participants demonstrated behaviors that could have resulted in injury or death had the electric shocks been genuine. In the initial and best known version of this experiment, a lab assistant (yet another of Milgram's confederates) stayed in the same room as the research participant and politely yet firmly reiterated that the experiment must continue; the perceived victim could be heard but not seen by the participant and there was only voice contact between them during the experiment. In this version of the study, 62.5% of Milgram's 40 participants believed they were administering a 450-volt shock to the victim, who by this point had stopped responding and was presumably unconscious [8]. These initial findings were replicated with many variations, including explorations on the effect of having the perceived victim in closer proximity to the research participant and the introduction of dissenting lab assistants. Milgram also documented his findings, which at the time seemed unbelievable to many, in a film called *Obedience* released in 1965 [10].

It is important to note that Milgram's research techniques and theoretical leanings were well within the bounds of contemporary social psychology. The use of deception within a research study was practiced notably by both Asch and Sherif [2, 15] within pseudo-psychophysical context requiring participants to estimate the lengths of lines or the distance a point of light moved in the darkness of a psychology lab. Confederates were used in those studies to deceive the research participant into voicing observations that conformed to a perceived group. Kurt Lewin (1980–1947), one of the earliest social psychologists, helped to pioneer the experimental manipulation of the social situation to elicit differing prosocial and antisocial behaviors; Lewin, Lippit, and White's study on leadership styles in children's clubs (1939) demonstrated the lack of initiative and other negative behaviors resulting from authoritarian-style social structure [7]. Milgram differed from all of these in that the entire social structure of his initial experiment consisted of the participant and the confederates impersonating the experimenter and the learner. Milgram demonstrated participants' compliance to requests from an authority figure (and not an organization or a perceived social group) to do harm to another human being.

Milgram's other work was considerably less controversial by comparison and is not cited as frequently within the literature. Nevertheless, this diverse assortment of city-based studies shares with the obedience research a commitment to the exploration of situationist variables and their relation to rule-based behavior. Among the areas Milgram explored were the formations of crowds of observers and the etiquette of cutting into waiting lines in public places [9, 12]. Milgram also published research on the "Small World" problem based on communication and social networking theory, in which persons were asked to indirectly forward a package to a stranger in a different city by mailing the package to someone they thought

might know the stranger [6]. While the research is inconclusive due to the large number of unsuccessful completions, in successful completions, Milgram found that the average length of a chain consisted of five to six people and in this sense Milgram's results anticipated the "six degrees of separation" theory that is popularly known on the Internet today.

Contributions

While not a prolific publisher, Milgram's body of research on obedience to authority is exceptionally important not only within psychology, but for society in general. Milgram's core research on obedience is almost universally cited within introductory psychology textbooks, making it one of the best-known research studies of all time. Milgram's research, while disquieting, also illuminated issues of conformity, depersonalization, authoritarianism, and willingness to engage in destructive behavior as a function of the situation. Milgram himself publicly suggested the obedience studies helped explain institutional atrocities of the twentieth century, especially the extermination programs of Nazi Germany.

Although Milgram almost certainly did not intend it, the obedience studies also drew necessary attention to research ethics of psychologists. Although no participants were physically harmed, and Milgram maintained that none experienced psychological trauma, the psychological research community at large reassessed the appropriateness of deception as a methodological tool and the importance of written informed consent and debriefing. This began as early as 1964, when developmental psychologist Diana Baumrind (born 1927) published her critique of Milgram's initial obedience study [3]. Rather than focus on Milgram's reassurance that no harm had been done, Baumrind concentrated on the potential harm that might have occurred; her concerns are echoed in contemporary guidelines for Institutional Review Boards who must consider and heavily weigh the potential for harm and protection of human subjects in research studies in deciding if the research should be approved or denied (*Belmont report*, 1978). The American Psychological Association's ethics code (2002) is another post-*Obedience* document that not only shares the *Belmont Report*'s position on the prevention of possible harm but also strongly discourages the use of any experimental deception in modern research [1].

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Millon Adolescent Clinical Inventory

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Synonyms

Millon adolescent personality inventory; Personality testing

Definition

The Millon Adolescent Clinical Inventory (MACI) is a personality inventory for adolescents between the ages of 13 and 19.

Description

The MACI is a 160 question self report personality inventory (self-report personality test) that assess personality styles based on Millon's theory of personality styles. It was designed to supplement the Millon Adolescent Personality Inventory (MAPI). The MACI was initially published in 1993 and is appropriate for adolescents between the ages of 13 and 19. The test items were written at a sixth grade reading level and the instrument can be completed in 25–30 minutes [1]. The MACI was specifically designed for use with adolescents in clinical settings only and should not be used with nonclinical adolescents [3, 4, 5].

The MACI was developed to correlate with diagnostic criteria in the DSM-IV. It is available in both English and Spanish [3, 4].

Scales

The MACI has a variety of scales, including three modifying indices, 12 Personality Patterns Scales, eight Expressed Concern Scales, and seven Clinical Syndromes scales. In addition to these 30 indices and scales, the MACI contains two validity questions designed to assess the adolescent's attention to the test items. The three modifying indices – Disclosure, Desirability, and Debasement – were designed to assess the adolescent's attitude towards the test [3]. The 12 Personality Patterns Scales – Introversive, Inhibited, Doleful, Submissive, Dramatizing, Egotistic, Unruly, Forceful, Conforming, Oppositional, Self-Demeaning, and Borderline Tendency – were based on Millon's theory of personality structure [2–4]. The eight Expressed Concerns scales – Identity Diffusion, Self-Devaluation, Body Disapproval, Sexual Discomfort, Peer Insecurity, Social Insensitivity, Family Discord, and Childhood Abuse – were meant to focus on attitudes and feelings that are common among adolescents involved in mental health treatment. The remaining seven indices – Eating Dysfunctions, Substance-Abuse Proneness, Delinquent Predisposition, Impulsive Propensity, Anxious Feelings, Depressive Affect, and Suicidal Tendency – form the Clinical Syndromes scales. The Clinical Syndromes scales each assess a different specific clinical syndrome, such as anxiety (Anxious Feelings) [3, 4].

In addition to these scales, the MACI software now provides Grossman Facet Scales for each of the 12 Personality Patterns Scale. Each Personality Pattern Scale has three Grossman Facet Scale intended to help to identify specific personality processes. For example, the three Grossman Facet Scales for Borderline Tendency scale are Temperamentally Labile, Cognitively Capricious, and Uncertain Self Image. Each of these is an individual personality characteristic associated with Borderline Tendencies [2].

Scoring

The MACI can be scored by hand, by computer using the Q local software, by mailing the forms in, or by scanning. The manual advises against hand scoring; however, describing the procedure as "complex." The MACI does not use *t* scores, like the MMPI-A. Instead, the MACI relies on base rates that are adjusted based on how the adolescent responds to the items on the test. The base rate adjustments are described in the manual and are a complex series of calculations [3, 4].

Psychometric Properties

The MACI was standardized on 1,017 individuals between the ages of 13 and 19. The standardization sample was over 50% male. The base rates were developed on 579 adolescents. Additionally, 333 adolescents participated in cross validation studies with the Beck Depression Inventory, Beck Hopelessness Scale, the Beck Anxiety Inventory, the Eating Disorder Inventory-3, and the Problem Oriented Screening Instrument for Teenagers [3, 8].

The internal consistency of the various scales is good, ranging from 0.73 (Expressed Concerns – Sexual Discomfort) to 0.91 (Expressed Concerns – Self Devaluation). Test-retest reliability was based on 47 protocols and ranged from 0.57 (peer insecurity) to 0.92 (borderline tendencies) [3, 8].

Relevance to Childhood Development

The MACI is a personality instrument that can be used with adolescents involved in mental health settings to help guide treatment [5–8].

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Millon Adolescent Personality Inventory

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Synonyms

Millon adolescent clinical inventory; Personality testing

Definition

The Millon Adolescent Personality Inventory (MAPI) is a personality inventory for adolescents between the ages of 13 and 18.

Description

The MAPI is a 150 question self-report personality inventory that assesses personality styles based on Millon's theory of personality types. It was initially published in 1982, designed to correlate with DSM-III-R diagnostic criteria, and is appropriate for adolescents between the ages of 13 and 18. The test items were written at a 6th grade reading level and a typical adolescent can complete the instrument in less than 30 minutes. Unlike the other Millon personality test designed for adolescents, the Millon Adolescent Clinical Inventory (MACI), the MAPI was designed for use with both "normal" adolescents and adolescents involved in clinical settings [2, 4–6].

The MAPI is an update to the Millon Adolescent Inventory (MAI). It has two forms: the Clinical Form (MAPI-C) and the Guidance Form (MAPI-G). The MAPI-C was developed in order to serve as an aid to mental health professionals who work with adolescents in a clinical setting. The MAPI-G was developed to help school professionals identify students who may benefit from additional mental health services [4].

Scales

The 150 true/false items on the MAPI yield 20 different scales and two validity indices. The validity indices, Reliability and Validity, each contain three items. The Validity index assesses for random responding while the Reliability index assesses the adolescent's honesty in responding to the items. In addition to these two indices, the MAPI has a mechanism similar to the K correction on the MMPI-2 and the MMPI-A. This method of response bias incorporates the response bias (e.g. presenting self in an overly positive manner) directly into the 20 scales of the MAPI [1].

The 20 scales are subdivided into eight Personality Styles scales, eight Expressed Concerns scales, and four Behavioral Correlates scales. The Personality Styles scales assess eight different personality characteristics based on Millon's schema of personality: Introversive, Inhibited, Cooperative, Sociable, Confident, Forceful, Respectful, and Sensitive. The Expressed Concern scales assesses eight areas that adolescents typically have some level of personal concern about, including Self-Concept, Personal Esteem, Body Comfort, Sexual Acceptance, Peer Security, Social Tolerance, Family Rapport, and Academic Confidence. Finally, the Behavioral Correlates scales evaluate that adolescent's actual behavior in four areas: Impulse Control, Social Conformity, Scholastic Achievement, and Attendance Consistency [1, 4, 6].

Scoring

The MAPI cannot be hand-scored. Instead, users can choose between three different scoring methods: Mail In, Computer Scoring, and Scan Scoring. Each method of scoring provides a computer printout that includes the raw scores, the base rates, and an interpretation for each of the 20 scales. The response bias (e.g., presenting self in an overly positive manner) is incorporated into the base rates; however, the computer print out does not include what portion of the base rate is due to the response bias correction [1, 4].

Psychometric Properties

The MAPI was standardized on 2,157 normal adolescents (1,071 males and 1,086 females), representative of various socioeconomic statuses. It is not clear in the manual whether the normative sample was representative of race/ethnicity. The clinical sample consisted of 430 additional adolescents who were receiving either outpatient or inpatient mental health treatment [4].

The internal consistency of the items on the MAPI is adequate, ranging from 0.45 to 0.84. The manual reports correlations between the MAPI and other personality measures, including the California Personality Inventory [4]. Studies examining the relationship between the MAPI and the MMPI have shown low rates of diagnostic agreement [3].

Relevance to Childhood Development

The MAPI can be used by mental health professionals for use in treatment planning with adolescents. It can help to identify areas of concern for the adolescent and areas that could be addressed in therapy.

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Mindblindness

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Synonyms

Empathizing; Mentalizing; Mindreading; Perspective taking; Theory of mind

Definition

The inability to attribute mental states such as thoughts, desires, knowledge, and intentions to self and others, and to make sense of and predict another person's behavior.

Description

Mindblindness theory proposes that children and adults with autism spectrum disorders are delayed in the development of what Premack and Woodruff [19] termed "theory of mind" (ToM). ToM is a cognitive (attribution) component of empathy; the ability to identify cues that indicate the thoughts and feelings of others and "to put oneself into another person's shoes" [1]. It is also referred to as "mentalizing," "mindreading," and "perspective taking." According to Baron-Cohen [2], the ability to reflect on one's own and other people's minds (beliefs, desires, intentions, imagination and emotions) allows us to interact effectively with others in the social world. Typical individuals are able to mindread relatively easily and intuitively. For example, we can read a person's facial expression and body language, and tone of voice and recognize his or her thoughts and feelings, and the likely course of behavior. In other words, we interpret, predict, and participate in social interaction automatically, and for the most part, instinctively. This attribution of mental states is a fundamental component of social interaction and communication. An impairment in ToM results in an inability to appreciate other people's emotions and thoughts, and to make sense of or predict another's actions. As a consequence, the person with impaired ToM is said to have a form of "mindblindness" or a deficit in "empathizing" ability [3].

Relevance to Childhood Development

The concept of ToM and mindblindness has been widely studied over the past two decades and used to explain the development of social cognition and the core social deficits of developmental disorders such as autism [6, 16]. The understanding of other people's mental states develops early in life and becomes more complex with advancing age [7, 8]. Research suggests that typically developing children, in contrast to those with autism, are born with a set of skills which enable them to comprehend and respond to other people's mental states and feelings [3]. For example, children can understand relationships between mental states by 3 years of age. By age four, they can understand that people can hold false beliefs (deception). Typical children at age seven begin to understand what not to say to avoid offending others. A typical 9 year-old can interpret another person's facial expressions and figure out what they are thinking or feeling [3]. It is a deficit in this normal process of ToM or empathizing that has the potential to explain the lack of pretend play and the core social and communication problems diagnostic of children with autism [6, 15]. Children with autism are said to lack an effective ToM and thus, have a form of mindblindness. Baron-Cohen [3] has broadened the mindblindness theory to include an affective component (emotional reactivity) and a second factor termed systemizing to explain the non-social areas of strength often demonstrated by individuals with autism spectrum conditions.

Children with ToM impairment frequently experience academic, behavioral, and emotional problems related to their social skills deficits. Indeed, impairments in social reciprocity are one of the defining characteristics of autism spectrum disorders [3, 18]. Consequently, interventions focusing on social adaptive skills are critically important to the treatment of this group of children [17]. While the research on the effectives of social skills

intervention is still in the formative stage, several programs have been developed to promote prosocial behavior and expand ToM abilities among children with autism spectrum disorders [10]. They include: social stories [12], computer programs such as Mind Reading: The Interactive Guide to Emotions [5] and The Transporters [4]; ToM teaching programs [13, 18] and social skills programming [9, 11, 14, 20].

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Mindreading

►Mindblindness

Minimal Brain Dysfunction

►Attention Deficit Disorder
►Developmental Coordination Disorder

Minimal Cerebral Dysfunction

►Developmental Coordination Disorder

Minnesota Multiphasic Personality Inventory

►MMPI

Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A)

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Definition

The MMPI-A is a structured personality inventory based on the MMPI-2. However, the MMPI-A is designed to be used with adolescents ages 14–18.

Characteristics

The MMPI-A is designed to measure characteristics of personality and psychopathology among adolescents. The test was published in 1992 and consists of 478 true/false items. The person being tested can complete the test individually; it is self-administered. Scoring of the MMPI-A can be done by the administrator, by hand, or with the use of a computer program. The MMPI-A has several validity scales to detect response patterns such as defensiveness or inconsistent responding. The primary clinical scales are the same as those on the original MMPI and MMPI-2, and thus include: Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Masculinity-Femininity, Paranoia, Psychasthenia, Schizophrenia, Hypomania, and Social Introversion. There is much research on the reliability and validity of each of these scales. Since the publication of the MMPI-A, several other scales (e.g., content scales, supplementary scales) have been created to assess other components of an adolescent's personality. As with the MMPI and MMPI-2, valid interpretation of MMPI-A scores requires a high degree of experience and expertise.

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Mirror Neurons

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Definition

Nerve cells, first discovered in monkeys, located in the ventral premotor cortex (F5) of the macaque. These cells fire both when the animal engages in goal directed behavior and also when it observes the same behaviors performed by others. A similar system of neurons has been identified in the right inferior parietal lobe of the brain in humans using fMRI techniques, and mirror neurons are hypothesized to exist in other regions of the brain.

Description

The mirror neuron system is considered to be an "observation-execution" or "self-other" matching system within the nervous system that converts sensory information to a motor format. This system has been hypothesized as a neural substrate for processing motor, linguistic, emotional and other higher cortical functions [6]. Mirror neurons are believed to account for aspects of empathy and ability to "read" the thoughts of others (theory of mind), social learning and understanding or inferring intention, as well as learning motor skills through imitation. They are believed to serve the adaptive function of allowing "access" to the thoughts of others, thereby promoting socialization and social behavior.

Damage or deficits in this system are hypothesized to explain the absence of social behaviors in autism, as well as some symptoms of schizophrenia. There are implications for the mirror neuron system in the development of language (by processing prosody via the limbic system) and processing emotion as well.

The mirror neuron construct has become less controversial over time as numerous studies, including more recent neuroimaging and neurophysiological research, have demonstrated more conclusive findings regarding the existence of these systems in the human brain.

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Mirtazapine

▶Remeron®

Miscarriage

▶Abortion

Misfortune

►Bereavement

Mixed Lineage Leukemia

►Childhood Leukemia

Mixed Models

►Hierarchical Linear Modeling

Mixed Specific Developmental Disorders

►Developmental Apraxia

MMPI

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Synonyms

Minnesota multiphasic personality inventory; MMPI-2

Definition

The MMPI (and the revised version, the MMPI-2) is a structured personality inventory that includes multiple validity and clinical scales in order to measure personality across numerous dimensions. It also has content scales that can be used to measure different aspects of an individual's personality, and research continues to examine the creation and psychometric properties of additional scales. The MMPI-2 was published in 1989 [1], and this updated version capitalized on what was learned from the years of research and clinical use of the original MMPI.

Description

The MMPI-2 is used as a measure of personality characteristics and psychopathology among adults ages 18 and older. The test consists of 567 true/false items. The person being tested can complete the test individually; it is self-administered.

Scoring of the MMPI-2 can be done by the administrator, by hand, or with the use of a computer program. The MMPI-2 has several validity scales that are designed to detect response patterns, such as inconsistent responding, defensiveness, or reporting extremely rare or severe collections of symptoms. The primary clinical scales are consistent across the MMPI and MMPI-2 and include: Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Masculinity-Femininity, Paranoia, Psychasthenia, Schizophrenia, Hypomania, and Social Introversion. There is much research on the reliability and validity of each of these scales, and on using the combination of different scale elevations to make predictions about personality and behavior. Since the publication of the MMPI-2, several additional scales have been created to assess other (i.e., more precise or narrowly-defined) components of a person's personality.

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MMPI-2

►MMPI

Mnemonic

►Mnemonic Device

Mnemonic Device

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Synonyms

Cognitive strategies; Memory strategies; Memory technique; Mnemonic; Mnemonic strategy; Mnemonic technique

Definition

A mnemonic device is a specific, cognitive cuing strategy designed to aid memory.

Description

Mnemonic devices are memory techniques that systematically change difficult to remember material into more easily remembered material [16]. Such devices provide a cognitive cuing structure [2] by which to bring back to-be-recalled information. As a simple example, the *first-letter mnemonic* is a device familiar to most individuals. Many students learned to remember the names of the great lakes by remembering *HOMES* (i.e., Huron, Ontario, Michigan, Erie, and Superior). Another example is using *ROY G BIV* to prompt recall of the colors of the spectrum (i.e., red, orange, yellow, etc.). Notably, here, the colors of the spectrum are cued *in order*. The downside to this simple device is that single letters serve as rather meager retrieval cues. Mnemonic devices have been around for many years, and some, like the *method of loci*, date back to ancient times [19]. Much of the empirical research regarding such techniques began in the mid-1970s and continued through the 1990s.

Encoding Versus Organizational Mnemonics

Bellezza [2] proposed two general categories of mnemonic devices: *encoding mnemonics* and *organizational mnemonics*. Encoding mnemonics essentially facilitate paired-associate learning, such as associating words and their meanings, states and their capitals, names and faces, and so on. Examples of encoding mnemonics include the *keyword method* and the *face-name mnemonic*. In contrast, organizational mnemonics associate several pieces of information, such as remembering the names of all the great lakes, or the order of the colors in the spectrum. Examples of organizational mnemonics include the *first-letter mnemonic*, the *method of loci*, the *pegword method*, and the *story* and *link mnemonics*. Organizational mnemonics are particularly useful for serial or free recall of ordered information, as in the ROY G BIV example.

Encoding Mnemonics

The keyword method: Of the various encoding mnemonics, perhaps the most versatile (and most researched) is the keyword method (e.g., [1]). The technique can be described in terms of Levin's [7] *three R's* of associative mnemonic recall: *recoding*, *relating*, and *retrieving*. Say that one wanted to remember that the word *loquacious* means overly *talkative*. First, the word *loquacious* is *recoded* as an acoustically or orthographically similar keyword, such as *liquor*. Next, the keyword, *liquor*, is *related* to the meaning by way of an interactive visual image (e.g., imagine someone drinking *liquor* and becoming very *talkative*). So encoded, *retrieval* proceeds as follows: *loquacious* -> *liquor* -> the image involving liquor and talkativeness -> *talkative*. Visual imagery (e.g., [12]) is often called upon in mnemonic techniques to serve as the "glue" to hold things together. Extensive research has validated the keyword method as a useful device for facilitating paired-associate learning in a variety of situations, such as foreign words and their meanings, science terms and their definitions, and, using a dual-keyword approach, states and their capitals (e.g., [8, 16]). A fourth important *R* is *rehearsal*. As in learning anything, acquiring information by way of a mnemonic device benefits from overlearning.

The face-name mnemonic: Another potentially useful encoding mnemonic is the *face-name mnemonic*. A close cousin to the keyword method, the face-name mnemonic associates a pictorial stimulus (i.e., a person's face) with a verbal response (i.e., the person's name). For example, imagine someone named Komer who has a prominent feature: a thick mustache. One first recodes the name *Komer* as a more concrete name clue (or keyword), such as *comb*. Then, the name clue, *comb*, is related to his face by interacting the comb with his mustache (e.g., imagine a comb stuck in his thick mustache). Then, upon next seeing Mr. Komer, retrieval proceeds as follows: face -> thick mustache -> image of comb stuck in mustache -> *comb* -> *Komer*. Research has provided some support for the face-name mnemonic (e.g., [14]). It can also be applied to other learning tasks where a pictorial stimulus (e.g., a painting) prompts a verbal response (e.g., an artist's name), such as in learning to associate artists' names and their paintings in art appreciation and art history classes (e.g., [4]).

Organizational Mnemonics

The pegword method: Two of the most researched organizational mnemonics are the pegword method and the method of loci. These two strategies are quite similar in that each has a fixed set of "hooks" (i.e., either pegwords or locations) with which to interact to-be-remembered items through visual imagery. To use the pegword method, one first learns a set of easily-remembered pegwords that rhyme with numbers (e.g., 1–10). It is easy to remember that *one* is a *bun*, *two* is a *shoe*, *three* is a *tree*, and so forth up to *ten* is a *hen*. Then, to mentally store a list of things (e.g., groceries, such as milk, bread, bananas, ketchup, etc.), one simply interacts each to-be-remembered item with each of the pegwords (e.g., imagine *milk* being poured on a *bun*, a *shoe* squashing a loaf of *bread*, *bananas*

hanging in a *tree*, *ketchup* splattered on a *door*, etc.). Remembering, then, is prompted by simply going down the list of numbers (1, 2, 3, 4 and so on). For example, saying "one" cues *bun*, *bun* cues the image involving the *milk*, and this, in turn, yields *milk* – the first item on your grocery list. The remaining items are easily recalled via this cognitive cuing structure. On a more school-related note, more abstract, ordered lists encountered in academic settings (e.g., hardness levels of minerals, the ten highest mountains, the order of events in an historical account) can also be stored this way. However, less-than-concrete to-be-learned items (e.g., minerals: *talc*, *crocoite*, *antimony*, *wolframite*, etc.) may need to be recoded as keywords (e.g., *tail*, *crocodile*, *ant*, and *wolf*) before interacting them with the pegwords. With this added step, remembering is as described previously, except that recall of the image yields the keyword, which in turn yields the actual item (e.g., *wolf* prompts *wolframite*). As with other strategies, research as generally supported use of the pegword mnemonic (e.g., [6]).

The method of loci: Instead of pegwords, the method of loci uses a fixed set of locations to serve as the cognitive cuing structure. The locations might be places or things one might encounter in walking across campus or through ones home. For example, upon arriving home, one might encounter the driveway, the garage, the front door, the closet, and so forth, in that order. To-be-remembered items, such as the grocery list items mentioned earlier, can be interacted with each of the locations in a visual image. For example, one might imagine *milk* running down the *driveway*, loaves of *bread* stacked neatly in the garage, a *banana* squashed against the front *door*, and so forth. Then, to remember the items, one simply takes a mental walk through the locations (in order). Each location should bring back the visual image, which in turn yields the grocery item. As described above, keywords can be used in place of less than concrete to-be-learned items, such as the list of minerals. As with other mnemonic devices, research regarding the method of loci has generally supported its use (e.g., [3, 10]).

Why Mnemonic Devices Work

While mnemonic strategies are sometimes discounted as mere tricks or gimmicks, they work because they are based on sound memory principles, such as rhyming, recoding, and relating. All mnemonic devices involve some form of elaboration (e.g., [18]). And, although most of the examples included here suggest visual imagery, verbal elaboration can be used as well, as in the rhyme "i before e, except after c." Indeed, the various descriptions of images were presented verbally, and hence may be especially memorable because of their dual representation in memory (i.e., they are encoded in memory as both imaginal *and* verbal units). See Paivio's [15] *dual-coding hypothesis* for more on this theoretical explanation.

Relevance to Childhood Development

Even in this age of instant facts via the Internet, school children are still called upon to learn and remember much information. Further, higher-order thinking is often built upon "facts" that are stored in and available from memory. While some students are blessed with good memories, others struggle with tasks that require memorization. In this regard, mnemonic strategies come highly recommended. Extensive research, particularly with the versatile keyword method, has supported the use of such techniques with children in a variety of content areas.

However, the extant research does not represent a blanket endorsement. In his "twenty-year report card" based on mnemonic strategy research findings, Levin [8] assigned A's to the use of mnemonics when applied to factual content (e.g., using the keyword method to associate a term and its definition), and to their use in special education. Next, a B was awarded when it came time for students to generate their own mnemonics (following instruction and practice). Graded a bit lower, C's were awarded when the particular mnemonic strategy was overly complex (e.g., the *digit-consonant mnemonic* for remembering numbers or dates), and when different mnemonic devices were combined (again, yielding a more complex approach). Finally, a D was assigned when it came to *transfer*. That is, just because students learned to use a mnemonic in one situation did not mean that they would apply it in a new, slightly different situation. A final caveat is that, below the age of nine, children tend to have difficulty when directed to use mental imagery. Hence, providing pictures illustrating mnemonic interactions is preferred in working with young children.

As indicated by Levin's "A" award, mnemonic strategies have been used quite effectively with children in special education settings. Based on their research, Mastropieri and Scruggs [11] have written a guide describing the use of mnemonic techniques with such students. More generally, practical, memory improvement and memory strategy books abound (e.g., [5, 9, 13, 17]).

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Mnemonic Strategy

►Mnemonic Device

Mnemonic Technique

►Mnemonic Device

Mode

►Norms

Modeling

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Synonyms

Observational learning; Social learning theory

Definition

Modeling is the process through which children learn a large number of behaviors, skills and, ways of thinking and feeling without direct experience. The phenomenon of modeling, proposed by Albert Bandura recognizes that learning can take place through observation and that this learning involves cognitive processes. The term is also used to refer to techniques in cognitive behavior therapy where the therapist enacts a skill or behavior that the client will learn through observation and imitation of the therapist or where the therapist presents information in symbolic form to the child that the child may use to modify behavior.

Description

Theory

The process of modeling acknowledges the social cognitive aspects of learning. It goes beyond description of learning thorough operant principles to describe how children and others can learn without direct experience of consequences for their responses. Considerable learning is purported to take place through the child's watching and listening to others' behaviors, speech, and actions. This learning can occur through either live or symbolic models. Live models are typically parents, teachers, other adults or peers. Symbolic models include books, videotapes, films, or other media. Live modeling then describes learning by direct observation of a model or exemplar while symbolic modeling describes learning by presentation of a model or exemplar indirectly. Not only do children learn actual behaviors but also they learn the probable consequences of behaviors through vicarious reinforcement. Thus imitation, the matching of the model's behavior, may be described separately from vicarious learning which is the increase or decrease in the observer's behavior that is similar to that of the model whose behavior was reinforced or punished [1]. Imitation and observational learning are notably not the same according to Bandura's conceptualization.

According to Bandura, observers acquire symbolic representations of the observed behavior which is later used to guide the observer's performance. He specifies

the component processes involved in this process of observational learning: attention, retention, motor reproduction, and motivation [2]. All four are necessary for observational learning to occur. Attention is key due to important features of both the observed or modeled events and the observer. First, the event must attract the attention of the observer. Important features of the modeled events related to the attention they will attract include salience, affective valence, complexity, prevalence, accessibility, and functional value. Similarly, important observer characteristics determine what will be attended to and those include cognitive capabilities, cognitive preconceptions, arousal level, and acquired preferences. Retention processes refer to the processes involved in remembering or acquiring a symbolic representation of the event so that they may be recalled at a later date. These include symbolic coding, cognitive organization, cognitive rehearsal, enactive rehearsal, cognitive skills, and cognitive structure. Motor reproduction features describe the features in the observer that are necessary for recreation after they have been attended to and retained. In sum, the observer must be able to retrieve the information from memory, organize it, engage in a reproduction of it, compare the reproduction to the conceptual model and adjust the response accordingly. Thus, important characteristics in this step include the availability of component responses, physical capabilities, self-observation and monitoring of reproduction and, accuracy of feedback. Last, motivational processes determine whether a behavior that is attended to, retained, that the observer has the capability to reproduce will in fact be performed. Performance of behavior will depend on external reinforcement, vicarious reinforcement and, self-reinforcement and self-evaluation. That is on the extent to which the observer is likely to obtain direct reinforcement for the behavior, the extent to which the observer was influenced by the reinforcement received by the model, the observer's capacity to reinforce himself and other observer attributes such as internal standards, reinforcement preferences and social comparison bias.

In later conceptualizations [4], Bandura used the concept of self-efficacy to describe an important observer characteristic influencing both learning and production of behavior. Self-efficacy, the belief that one can cause some effect in the environment, guides what behaviors are attempted and what further behaviors develop. It is a concept describing the individual's expectation he or she will likely be successful in performing a behavior in a particular situation or context. Self-efficacy develops through a history of successes, observational learning, what others tell us about our abilities and the emotional state experienced when performing the behavior.

Applications to Child Psychotherapy

Modeling is often used in child psychotherapy. Indeed, it is a technique that often appears in evidence-based child treatments and is designated as one of twenty six effective interventions known as "practice elements" by Chorpita, Daleiden and Weisz appearing in evidence-based treatment approaches [7]. Therapists demonstrate adaptive behaviors, ways of thinking etc. with the expectation that they child will learn new ways of behaving, thinking and feeling. Therapists typically provide: a live demonstration (live modeling); a video, pictorial or story demonstration (symbolic modeling,) or; an adaptation that involves asking the child to imagine a model engaging in behaviors and activities related to the target adaptive behavior (covert modeling) [7]. Additional variations include: graduated modeling (presentation of successively more difficult behaviors); guided modeling (use of physical prompting); guided modeling with reinforcement, and; participant modeling (use of contact with the therapist to guide performance) [7].

Relevance to Childhood Development

Modeling is one of the fundamental mechanisms through which learning and development take place in children according to social learning and social cognitive theory. Children learn a wide variety of adaptive and maladaptive behaviors through modeling. Social skills, language, moral reasoning, and gender roles are acquired primarily through observational learning. Similarly, children's fears can be acquired without exposure to the feared stimulus through observational learning and aggressive behaviors can be acquired through observational learning.

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Modeling Technique

►Observational Learning

Moderate Mental Retardation

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Synonyms

Cognitive impairment; Developmental disabilities; Intellectual disability; Mental deficiency

Definitions

Moderate mental retardation is defined as significantly sub average intellectual ability, which ranges between 35–40 and 50–55 and concurrent delays in adaptive functioning that present prior to the age of 18.

Description

According to the Diagnostic and Statistical Manual-Fourth Edition-Text Revision (2000), Moderate Mental Retardation (MR) is characterized by individuals with cognitive impairments that correspond to an IQ score between 35–40 and 50–55 and deficits in adaptive functioning that present before the age of 18. Individuals with moderate MR constitute 10% of the mentally retarded population 1–3).

Relevance to Childhood Development

During the preschool years (between birth and age five), children with moderate MR can learn to speak and communicate; however, these children will often have poor social awareness and fair motor development [1, 2]. In addition, these children may profit from training in self-help skills, although moderate levels of supervision are frequently required [1, 2].

Children with moderate MR also benefit from social and occupational training; however, these children are unlikely to progress beyond the second grade level in academic subjects. Due to legislative polices, such as the Individual with Disabilities Act (IDEA, 1997), which stipulates that children with disabilities receive appropriate education within the least restrictive environment, children with moderate MR are now remaining in school for longer durations than before [3].

In familiar places, children with moderate MR can learn to travel independently. Throughout adolescence, difficulties in recognizing social conventions may interfere with peer relationships. As adults, a majority of individuals with moderate MR are able to perform unskilled or semi-skilled work under supervision. This can occur in sheltered workshops or within the general workplace. Adults with moderate MR can adapt to life in the community, typically in supervised settings [1, 4].

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Moderators

►Variables, in Experimental Developmental Research

Modification

►Accommodations, Piagetian
►Adjustment

Molestation

►Sexual Abuse

Monomodel Visual Amnesia

►Agnosia

Monosomy X

►Turner Syndrome

Monozygotic (MZ) Twins

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Synonyms

Identical twins; True twins

Definition

Monozygotic twins are formed from the fertilization of one egg from one sperm. A split in the fertilized egg (zygote) occurs during the early part of the gestational period, within 15 days when there are just a few cells. This causes two separate but genetically equal embryos to form, which accounts for their physical, mental, and sometimes emotional similarities.

Description

In the last century it was estimated that 3.5 of every 1,000 births were twins [3]. However, today it is estimated that about 1 of every 70 births are twins [1]. This rise is likely a result of scientific advancement in artificial fertilization and multiple egg fertilization for women who are unable to conceive otherwise.

Monozygotic twins share a placenta but have different amniotic sacs in 70% of the cases. This means that separate placentas and sacs can form, but this is more common in dizygotic twins [1]. Twins who share a placenta and sac rarely survive to birth because of the struggle for nutrients.

The pioneer in twin studies is Sir Francis Galton, who accurately proposed that similar genetic makeup was the reason twins looked alike [3]. In the 1930s, Josef Mengele, a young doctor from Germany began researching similarities in twins. His research and obsession reached its peak in the Nazi concentration camp, Auschwitz, where he experimented on twins. Mengele's research is still unknown because it was destroyed before soviet forces could reach him, though it is assumed that it was probably used to validate the Nazi idealization of the superiority of the Aryan race [3]. In the 1970s twin research focused on similarities between the two individuals. At the University of Minnesota, Thomas J. Bouchard Jr. began a study of twins who had been reared separately to compare their uncanny similarities in speech, choice of spouse, hobbies, and everyday behavior. Bouchard found that monozygotic twins "reared apart were as much alike as – in some cases more alike than – identicals reared together" [3].

Different cultures view twin births in different, unique ways. Some cultures revere twins as god-like and worthy of praise and admiration, while others see twins as a bad omen and thus discard and disgrace them [1]. In the United States twins are seen as unique oddities and can be singled out throughout their lives [1]. However, twins are fascinating to biologists and many studies have been conducted to find out more about them. As one recent example, a 19-year study of grey and white brain matter development in twins suggested that genetic factors play a role in similarities in brain development among twins; however, as they grow older, environmental factors play a larger role [2].

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Mood

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Synonyms

Affect; Disposition; Frame of mind; Humor; Inclination; Temper

Definition

A continued emotional state that affects one's outlook on life.

Description

Mood is a nebulous construct but generally refers to an emotional state that influences one's outlook on life. Within the context of child behavior and development, mood is often studied from the perspective of disturbances in mood, and the impact that these disturbances have on social, behavioral, and academic functioning. Three groups of criteria are used to diagnose issues related to mood; these groups include mood episodes, mood disorders, and specifiers that describe the current episode and recurrent course. Mood episodes are important because they describe the range of mood in children and adolescents. Mood episodes include Depressive, Manic, Mixed, and Hypomanic. A Major Depressive Episode

can be described as depressed, sad, down in the dumps, discouraged, and/or hopeless. Children and adolescents may exhibit an irritable or cranky mood during a Major Depressive Episode as opposed to sadness. This must be distinguished from irritability due to frustration. Manic Episodes are identified by an interval of time with a euphoric, expansive, or irritable mood that lasts at least one week. A Mixed Episode includes both a Major Depressive Episode and a Manic Episode. A Hypomanic Episode has the same criteria as a Manic Episode; however, criteria for this episode are met after only four days. Depending on the characteristics of the mood and the duration, a child may be diagnosed with a mood disorder; these diagnoses have very specific criteria in order to facilitate diagnostic precision.

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Mood Disorders

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Synonyms

Affective disorders

Definition

Refers to a group of psychological disorders identified by a disturbance in mood.

Description

Mood disorders represent a major category of the DSM-IV-TR diagnostic classification system. Mood disorders include many diagnoses, specifiers that describe the current and recurrent episodes, and qualifiers for levels of severity. Mood episodes do not have their own diagnostic code; however, they are the building blocks for the diagnosis of mood disorders. Mood disorders are separated into four categories: Depressive Disorders, Bipolar Disorders, Mood Disorder Due to a General Medical Condition, and Substance-Induced Mood Disorder. Depressive Disorders include Major Depressive Disorder, Dysthymic Disorder, and Depressive Disorder Not Otherwise Specified. These disorders are differentiated from Bipolar Disorders based on the absence of a Manic, Mixed, or Hypomanic Episode. Bipolar Disorders include Bipolar I Disorder, Bipolar II Disorder, Cyclothymic Disorder, and Bipolar Disorder Not Otherwise Specified and normally include Manic Episodes, Mixed Episodes, or Hypomanic Episodes together with current or past Major Depressive Episodes.

Historically, research on mood disorders among youth was neglected in comparison to the large amount of such research among adults. Recently, the study of mood disorders in children and adolescents has increased significantly, with particular attention given to developmental differences in the manifestation of mood disorders and whether the diagnostic criteria for mood disorders used with adults can also be applied to youth. The depressive disorders often have onset in childhood or adolescence and often have a chronic or recurrent course. Research continues to look at familial and interpersonal aspects in addition to genetic and neurobiological factors.

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Mood Disorders

►Affective Disorders

Moral Behavior

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Definition

To act according to ones moral values and standards. Children demonstrate prosocial and moral behavior when they share, help, co-operate, communicate, sympathize or in otherwise they demonstrate ability to care about others.

Description

A number of elements affect whether an individual will act morally. The ability to reason about moral issues provides a basic level of understanding necessary for moral action. According to Kohlberg's theory of moral development, individuals progress through stages of moral reasoning with higher order reasoning including concepts of fairness, justice and welfare [7]. Through the process of reasoning and judgment, an individual is able evaluate interpret the moral situation, formulate the moral ideal and choose a course of action that corresponds to one's moral values. Thus, higher order moral reasoning may lead to greater likelihood of moral behavior. For instance, research has found that children who cheat have lower levels of moral reasoning than those who do not. Delinquent adolescents have been found to have lower moral reasoning than non-delinquents. Higher levels of moral reasoning have also been found to be related to altruism. Matsuba and Walker [8] found adolescent moral exemplars who engaged in a high degree of moral behavior through social organizations they were involved in were more advanced in their moral reasoning [8].

However, moral reasoning does not necessarily predict behavior. There is often a discrepancy between moral judgment (perceiving an act as right or wrong) and moral choice (deciding to act in morally right way). Research has found that while we often espouse certain moral standards and values, we may act in our own self-interests in contradiction to those beliefs. In fact, in real life moral conflict situations, contextual factors may influence our actions more than logical thought and we may not use higher level reasoning abilities [2]. Self-interests may prevail instead. For instance, Hartshorne and May's classic study found that moral behavior does not depend on a child's character but is a function of situational factors [6]. Thus, while a child may act morally in one situation, they may act in their own self-interests in another.

Choosing which action is most moral for the situation, requires interpreting the need for a moral response to the situation at hand. However, social domain theory suggests that while some issues/dilemmas may be considered moral (i.e., related to issues of welfare, justice, rights), others may be viewed as social conventions or personal interests [12]. An individual may judge the issue to be in the moral domain and then act accordingly. However, these judgments may shift depending on the situation. By 3 years of age, most children can distinguish moral rules from social conventions. They evaluate hurting another or taking another's possessions as serious moral transgressions. Children also view lying as wrong and that honesty is the morally right behavior. Nevertheless, they may lie in some contexts to protect their self-interests (i.e., to avoid being punished) [10]. On the other hand, in some contexts children will lie (breach a moral code) in order to protect or help someone else (prosocial behavior). [11] Thus, children's behavior depends on the context and their evaluation of cost-benefit ratio to themselves and others and the resulting moral or prosocial behavior may be motivated by self-interests as well as adherence to moral codes or concern for others.

One of first steps toward moral behavior is the development of self-control, the ability to inhibit impulses. Preschoolers start to develop self-control and attempt to restrain their behavior to avoid temptation by distracting themselves or repeating the rules (i.e., I have to wait to play with the toy). Children's abilities to exercise self-control and to restrain unacceptable behavior gradually increases through elementary school years. An important motivating factor for moral behavior is empathy which involves being able to identify with another as well as understanding the effect of various possible actions on others. Empathy motivates individuals to become involved and provides information about another's distress and how it can be alleviated. As early as the preschool years, children show guilt and distress when they feel they have done something wrong and show empathy towards another when they are in distress. With increasing age, children show more empathy for others in difficulty. As children's ability to understand the perspective of others and reason prosocially increases, so does their prosocial behavior. Children have been found to exhibit more prosocial behaviors from elementary school onwards [5].

During adolescent years, identity development becomes important factor in motivating moral or prosocial behavior. As part of that development, adolescents feel a personal moral responsibility to act prosocially. According to Blasi, judgments of responsibility develop in stages somewhat in parallel to moral judgment stages [3]. Individuals who are at higher stages are more personally responsible for their values, decisions, and actions. For instance, adolescent care "exemplars" have been found to have an understanding of self based upon systematic moral belief systems. As adolescents' self-understanding and self-identity develop, there is an increase in the use of moral concepts to guide conduct.

Children internalize the moral rules and principles by adapting the external standards of the adult authority figures around them which they learn through directing instruction, observation, rewards and punishments [1]. Authoritative, democratic, responsive parenting is associated with higher levels of moral maturity. Children's moral

behavior is developed through warm caring parenting with clear consistent expectations. Adults foster moral behavior through control and communication of values, role modeling, fostering active reflection and the creation of opportunities for child to practice moral reasoning actions.

In addition to the influence of parents and other significant adults, peers can also influence children's moral behavior. Social expectations and norms of the peer group may influence children's behavior. For instance, in high school there is sometimes the perception that cheating is prevalent. Peer norms and attitudes of friends may influence if a child engages in academic dishonesty [9]. Research has found that children's peer debates can generate increased awareness of fairness and rights of others [4]. Other studies based on cognitive theory of moral development have found that discussions led by teacher-facilitators can also promote children's moral maturity. Kohlberg created the Just Community programs in high schools where students developed their own rules of conduct through discussion, reason and argument about fairness. Moral development occurred when students shared in the responsibility of creating a moral environment. Results suggest that students' complex moral reasoning increases while antisocial behavior declines.

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Moral Constraint

►Piaget's Theory of Moral Development

Moral Decision-Making

►Moral Judgments

Moral Development

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M

Synonyms

Development of moral sense; Ethics; Moral growth; Moral maturation

Definition

Moral development refers to the process whereby people form a progressive sense of what is right and wrong, proper and improper. As implied by the term development, human moral sense is commonly seen to involve a movement from simple and finite definitions of right and wrong to more complex ways of distinguishing right from wrong.

Description

Throughout history, the topic of moral development has been taken up by many theologians, scientists, and philosophers. Western philosophy provides three common platforms for thinking about human morality [9]. Christianity provides the doctrine of original sin, which holds that all human beings are born with a proclivity towards concupiscence. That is to say, without salvific intervention, all people will naturally behave selfishly, improperly, without regard for the good of others [5]. The second philosophical platform is that proposed by

Swiss-born French philosopher Jean-Jacques Rousseau, who believed that human beings are born good. Rousseau proposed that moral development required little if any societal or parental intervention, but that people would naturally develop a sense of right and wrong. Believing that societal institutions actually led people astray from naturally occurring moral development, Rousseau proposed the concept of the *noble savage*, a person uncorrupted by society's moral interference [10]. English philosopher John Locke proposed a third moral philosophy – human beings are born amoral and are influenced by experience. Locke proposed the term *tabula rasa*, or blank slate, to convey the idea that morality is completely derived from environmental interaction [10, 17].

More recently, psychologists have proposed several theories of moral development. The two predominant theoretical orientations of moral development that have emerged from psychology are the social learning/social cognition approach, based primarily on the work of Bandura [1–4], and the cognitive structuralism approach, which will be discussed here based primarily on the work of Piaget and Kohlberg [13–15, 18, 19].

From a social learning/social cognition approach, moral development is based upon values, both those of the individual – individual values – and those held by the community or group within which the individual resides – shared values [25]. For example, a value may be "human life is to be defended above all else," or "children should be seen, not heard." These values may then be translated into behaviors. Successful moral development within this theoretical framework occurs when individuals consistently engage in behaviors with positive consequences – that is to say, when an individual behaves according to values, or convictions, that are also shared by the community or group to which the individual belongs. This is learned both by noting the consequences of one's own actions, as well as the consequences of the actions of others, or environmental modeling [1–4]. Moral behavior, what is right and wrong, can be defined only relative to social context.

The cognitive structuralist view conceptualizes moral development as the acquisition via experience of social rules rather than the development and internalization of values. In contrast to the contextual values of social learning/social cognition theory, within the cognitive structuralist framework, rules are not relative, but rather universal, external properties of the world [25]. Piaget describes moral development, therefore, as playing a game, the object being the discovery of these rules [18–20]. As a person plays the game, they begin to pick up on rules, first seeing the rules as basic and finite, and then learning increasingly nuanced rules via social interaction and observation.

A third theory of moral development emerging from psychology, which bears mentioning, comes from the psychoanalytic tradition. According to Freud, moral development is the result of a childhood confrontation between the demands of the id and the desire to avoid punishment and earn desired acceptance [6].

Relevance to Childhood Development

Both social learning/social cognition and cognitive structuralism hold that human beings are innately amoral and stress experience as the key component of moral development. And while both theories hold that moral development occurs over the lifespan, each holds that the most significant moral development is achieved during the first two decades of life, with later development building on earlier foundations.

Social learning/social cognition conceptualizes moral growth as occurring gradually throughout life. That is to say, moral development is seen as a day-to-day accumulation of moral reasoning and understanding throughout life. This stands in contrast to the stage theory approach of cognitive structuralism, which posits sharp developmental trends [9, 18–20].

Both Piaget and Kohlberg, of the cognitive structuralist school of thought, proposed stages of moral growth thought to be observable at predictable ages. These stage theories emphasize increasingly complex internal cognitive processing. As a child's capacity for complex reasoning increases due to maturation in cognitive structures, schemas, and operation mechanisms, their moral worldview also increases in complexity [13–15, 18, 19].

Piaget proposed four stages of cognitive development along with three concurrent stages of moral development. His first stage of moral development, lasting between 4 and 7 years of age, is that of heteronomous morality. Heteronomous morality is characterized by an inflexible system of rules and the absence of questioning of authority. The second stage, lasting from 7 to 10 years of age, is the transitional stage in which a child exhibits moral judgments characteristic of both the first and third stages of moral development. Piaget's third stage is that of autonomous morality, which begins at age 10 and is characterized by a flexible rule system and concepts like equality, reciprocity and justice [18–20].

Kohlberg proposed a more detailed six stage model of moral development. Like Piaget, Kohlberg's first stage, also termed heteronomous morality involves an unquestioning attitude towards authority. His second stage, referred to as individualistic/instrumental morality, involves

maximizing the benefits to oneself while minimizing consequences. Stage three is that of impersonally normative morality, in which one partakes in shared social norms. During stage four, social system morality, one makes moral decisions in pursuit of the greatest common good. Stage five, human rights and social-welfare morality, marks the beginning of the promotion of universal values and rights. Kohlberg's sixth and final stage is that of universalizable, reversible, and prescriptive general ethical principles [13–15].

In psychodynamic theory, moral development is associated with the emergence of the superego during the Oedipal period, which occurs during the ages of 4–6. In essence, the id, the part of the mind that operates on the pleasure instinct, issues a demand that is met with prohibition. This is commonly understood as occurring in strictly Oedipal terms. That is to say, a child desires to replace the same-sex parent and possess the parent of the opposite sex. For a male child, the desire to overthrow father and possess mother results in feelings of being threatened by the same-sex competitor, namely castration anxiety. Frustrated, the child decides to ally himself with his father and begins to adopt his values and behaviors [6]. Because females are not confronted with the fear of castration, having no phallus to lose, psychodynamic theory is associated with the idea that females are weaker morally than men, having less motivation to adopt the values of the same-sex parent. However, the frustration of desire leading to the internalization of societal rules/values can easily be seen in many situations. If the superego does not emerge, and alliance with the same-sex parent does not occur, moral development may be affected throughout life.

Some theorists have taken issue with the above theories of moral development, specifically those of Kohlberg and psychodynamic theory, noting that they are biased towards male-typical moral development and underestimate the moral maturation and reasoning of women [7, 8, 27, 28]. One such theorist is Carol Gilligan, a student of Lawrence Kohlberg. Gilligan proposed that women develop moral systems based upon an ethic of care rather than an ethic of justice [7]. Gilligan proposed an alternative theory of moral development based upon care focused morality. The three stages she proposed are the preconventional stage (in which morality is based upon individual survival), the conventional stage (in which self-sacrifice is seen as goodness), and the postconventional stage (in which people operate using a principle of nonviolence to self and others).

More recent research in the moral development of children suggests that children begin to exhibit the beginnings of moral thinking much earlier than purported by traditional theories. In light of new research regarding the conceptual skills and relational abilities of infants and young children, it is increasingly believed that early childhood experiences experiences provide a foundation for moral thinking and humanistic regard in later life [26]. For instance, several studies provide evidence that, as early as 26 months, young children exhibit normalized standards for appearance and integrity by responding with distress when presented with flawed objects and showing moral emotions of embarrassment or concern in response to their image in the mirror showing a spot of rouge on their noses [12, 16]. Studies also suggest that 3- and 4-years olds distinguish between the domains of moral and socio-conventional standards, and that preschoolers prioritize fairness over convention during peer play [11, 21–24]. These and others studies suggest that the field of childhood moral development is still young and that we still have much to learn about the skills, abilities, and cognition of children [26].

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Moral Growth

►Moral Development

Moral Judgments

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Synonyms

Moral decision-making; Moral reasoning

Definition

Moral judgment refers to an evaluative assessment of others' actions based on the agent's motive as well as based on the consequence of the action within the context of societal and cultural values and standards.

Description

Human beings have the unique ability to assess a given situation with possible alternatives and potential consequences before generating an appropriate response. Such evaluations are usually guided by the accepted values and codes of the society, especially the moral values and moral codes. Morality is considered as a set of customs and values accepted by a cultural group or society in order to guide and control social conduct of individual members of that group. The actions of an individual or a group are judged based on such values and customs. Accordingly, certain actions are considered right and certain others as wrong. Such judgments may differ from society to society and culture to culture. Morality is a product of evolutionary forces that have shaped social cognitive and motivational mechanisms, which had already developed in human ancestors, into uniquely human forms of experience and behavior [25]. Moral judgment involves an evaluative assessment of the actions of others based on the agent's intentions and on the impact of the action on another individual or society. Moral judgments are evaluations of the actions or character of a person that are made with respect to a set of virtues held to be obligatory by a culture or subculture [12].

The ability to make moral judgments is thought to develop through several different stages. Psychological research by Piaget [23] and Kohlberg [21] on the development of moral cognition has focused on progressive stages of moral development. Their theories suggest that the progression from one stage to another is determined by experience. It is a progression from egocentric thinking to empathic thinking. It is also a progression from consequence based reasoning to intention based reasoning, where the actions and events are judged based on the consequences rather than the motive behind an agent's actions. For example, John breaks ten cups accidentally, whereas Jim breaks one cup deliberately. Very young children might judge John's action morally more wrong than Jim's. This is because their judgment of these situations is dependent on the consequence of the action rather than the intention behind the action. In order to interpret and judge a moral transgression, some understanding of the transgressor's motive is crucial. Young children's moral judgments are determined by the action's outcome rather than the actor's intention [13, 23, 26, 29, 30]. However, older children develop the ability to integrate the intentionality of the agent with the consequences of the agent's actions in making moral judgment [29, 30]. People's beliefs about an agent's mind serve as an input to the process by which they arrive at moral judgments about that agent's behavior [18]. Such understanding of other people's beliefs, desires and motives (Theory-of-Mind,

ToM) help us not only interpret others' actions but also predict their actions to a certain extent.

Theory of Mind (ToM) and moral judgment: Processing social transgressions has been associated with activation in neural systems involved in the representation of mental states of others [4]. ToM refers to the ability to understand and attribute mental states to oneself and to others, and is critical in social cognition and social interaction. Social interactions involve the reciprocal, interactive game of understanding other minds and modifying our own beliefs and thoughts about other minds based on our understanding. Having a ToM may be related to the ability to make moral judgment. The most important connection is that understanding the intentions of an agent is critical in morally judging the agent's actions. A recent functional MRI study of the interaction between ToM and moral judgment highlighted the importance of belief attribution during moral judgment [28].

As mentioned earlier, successfully interpreting and judging social scenarios also involves understanding a situation from multiple perspectives. Evaluation of the violation of a social norm differs depending on whether one is an agent or witness to a social transgression. Perspective-taking abilities have been found to have significant effect on moral reasoning [16]. According to Kohlberg [20], moral growth is guided not by simple brain maturation but rather by experience in role-taking or looking at a problem from multiple perspectives. Cognitive empathy, which has also been referred to as perspective-taking or role-taking, is the ability to understand the point of view of another person and is considered as an important achievement in cognitive development. Affective empathy, on the other hand, is the emotional response which often results from perspective-taking [24].

Emotion and reason in moral judgment: Moral judgment is an important aspect of human thought that sits at the intersection of cognitive and social domains as it involves the interplay of cognition and emotion. Emotion and reason have been at the center of the debate on moral cognition in philosophy, in psychology, and in neuroscience. In daily life we constantly assess a situation and make rightness or wrongness judgments. Evaluating a moral dilemma and coming up with a possible action plan involves the battle between cognition and emotion. However, the relative roles of emotion and cognition in moral judgment have been debated. Kant [17] believed emotional forces to be sources that tainted the process of moral thought, primarily because they were against the reasoning process. On the other hand, Hume [14, 15] argued that emotion is critical to moral judgment, and reason has no place in moral cognition. He believed that moral judgments are similar to aesthetic judgments and they are derived from sentiment, not reason. Damasio [7], through the somatic-marker hypothesis, emphasized the importance of emotions in decision-making process. He argued that emotions help to accelerate the decision-making process by limiting the number of possible alternatives available to the individual. This is particularly true in moral situations. For instance, an individual may not give second thought when he sees a group of teenagers pushing and shoving a blind man. Here, the immediate empathic arousal leads to a judgment which then prescribes an action. The social intuitionist model [12] proposes that moral reasoning does not cause moral judgment; rather moral reasoning is a posthoc construction, generated after reaching moral judgment. According to this view, moral judgment is caused by quick moral intuitions, as in the earlier example, and is followed by slow moral reasoning. Greene et al. [11] argued that emotions play a larger role in *personal* moral dilemmas than in *impersonal* or abstract ones. In their functional MRI study with typically developing individuals, regions associated with emotional processing were activated (medial frontal cortex, superior temporal sulcus, and posterior cingulate) during personal moral dilemmas, whereas cognitive areas were activated (dorsolateral prefrontal cortex) during impersonal moral dilemmas. On the whole, both emotion and reason play critical roles in moral judgment and their relative role is still a topic of debate. The relative role of emotion and reason may depend on several factors, such as the nature of moral dilemma, and the emotional or cognitive state of the evaluator.

The moral brain: The human brain is best understood as a confederation of mechanisms that usually act together, but at times may compete with one another, favoring different evaluations of similar circumstances [6]. A good example of such a circumstance is evaluating a social action and making moral judgment about it. Evaluating social situations is a daily affair in one's life and such assessments would require the integrative functioning of several processes, such as understanding a given situation, realizing the context, and integrating it with background information. The evolution of the human prefrontal cortex is intimately related to the emergence of human morality [22, 27]. The cortical areas primarily involved in moral judgment are the medial frontal cortex, the orbitofrontal cortex, ventromedial prefrontal cortex, superior temporal sulcus, amygdala, insula, posterior cingulate cortex and precuneus [10, 22]. Patients with lesions in the orbitofrontal and ventromedial prefrontal cortex have long been described as presenting high levels of aggression, lack of concern for social and moral rules

and irresponsibility [5, 7]. Lesions of these same areas during childhood impair the development of moral knowledge and ethical judgment [2]. The evidence converging from lesion studies underscores the role of these regions in moral behavior. Studies of individuals with psychopathy reveal utilitarian moral judgment. Patients with ventromedial prefrontal cortex damage exhibit generally diminished emotional responsivity and markedly reduced social emotions (e.g., embarrassment or guilt) that are closely associated with moral values [2, 3, 8, 9], and also exhibit poorly regulated anger and frustration tolerance in certain circumstances [19, 1]. Assessing a moral scenario involves looking at the agent's actions within the backdrop of a larger societal setting. Therefore, moral judgment may involve the coordinated functioning of several processes, such as reason, emotion, intuition, and intentionality, and may demand flexibility in thinking. In sum, the prefrontal cortex, especially the ventromedial prefrontal cortex may play a crucial role in moral decision-making process.

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Moral Maturation

▶Moral Development

Moral Realism

▶Piaget's Theory of Moral Development

Moral Reasoning

►Moral Judgments

Morals

►Ethics

Moro Reflex

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Synonyms

Embrace reflex; Startle reflex; Startle response

Definition

The Moro Reflex is one of the infantile reflexes and is also known as the startle reflex. It is an involuntary response that is present prenatally and at birth, which then disappears between the ages of 3 and 6 months. The reflex is elicited when the infant is startled by a loud noise, the sensation of falling or other environmental stimuli. The reflex causes the infant to arch the back, extend the arms, legs and fingers (abduction), and in most cases to cry.

Description

The Moro Reflex is characterized by a two step process in response to startling stimuli. First, the arms and legs extend and move away from the body, the spine extends which causes the head to roll back, and the fingers will fan out while the thumb and index finger form the shape of a "c." During this initial phase, the extension of the spine may be so great that the infant may roll to one side. Next, the legs and arms will be brought back to center as if in the form of an embrace and the hands will become clenched; this physical response is then usually followed by intense crying [1, 11, 12]. The Moro Reflex can be seen as early as nine weeks in utero and a full response will become integrated between two and four months postnatally [4, 6]. As the central nervous system develops, this response should gradually disintegrate until only a simple body jerk is left in adults in response to startling stimuli [12]. Hunt [10] describes deterioration of this response occurring as early as 1 month, Mandleco [11] states that this response should disappear between 3–4 months, Berk [3] states 6 months, and McGraw [12] recommends that if this response occurs after 5–7 months then medical inquiry into development is needed. The Moro Reflex is considered pathological if displayed in older children or adults as it indicates neurological damage. This same concern is applicable if an infant does not exhibit the Moro Reflex completely or partially during the first few months of development.

This innate reflex serves as a survival mechanism for the infant (e.g., in response to a threat such as a fall it helps the infant cling to the mother) and it is thought to be the only unlearned fear response in humans [3, 12]. One of the main purposes of this reflex is the assistance it provides during child birth. The vestibular system becomes functional around 8 months of pregnancy which allows the baby to turn itself into the head-down position. Infants that have a defect in this system are more often born breech, or feet first. This occurs because the infant may have difficulty detecting its position in space [6]. Due to the timeline of the development of the vestibular system, the Moro Reflex is often absent in preterm infants [14].

Ernst Moro (1874–1951), an Austrian pediatrician, first discovered and described this reflex. Because of his contributions to pediatrics, this response was named in his honor [12]. Gordon [8] and Sanford [16] are credited with first using this reflex as a diagnostic tool, suggesting that a continuance of the Moro reflex into childhood was indicative of cerebral or pyramidal injury and an asymmetrical pattern was indicative of injury on that side or motor paralysis. Sanford [16] used this reflex to assess injuries to the clavicle bone. The Moro Reflex is still used in infant assessment today to assess neurological development and physical injuries [8, 9, 15, 17]. Damage to the brain or spinal cord may cause infants to have a complete or partial absence of the Moro Reflex. Other injuries such as a broken shoulder or clavicle bone, cerebral anoxia, Erb's palsy, and Erb-Duchenne paralysis may also result in a defect in the Moro Reflex in infants [14, 15]. A retained Moro Reflex in older childhood and adulthood can be an indicator of a wide range of disease processes including vestibular problems, damage to the brain and spinal cord, neuropathic lesion, maldevelopment of the pallidal area and the pyramidal tracts, and mental retardation. A retained Moro Reflex can also cause biochemical and nutritional imbalances, ear and throat infections, fatigue, and mood swings [4, 5, 12].

In addition to the traditional method of eliciting the Moro reflex by dropping an infant slightly through space, other methods include tapping the abdomen, cold or warm applications to the child's trunk, extending the legs at the hips, blowing on the face, and bumping the

crib where an infant lies [1, 10]. Purposefully eliciting this response should be performed only in infants who are suspected to have serious neurological abnormalities as it can be very distressing to infants [15].

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Morpheme

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Synonyms

Infix; Prefix; Suffix; Word

Definition

A morpheme is a word or part of a word that is the smallest meaningful unit; it cannot be divided into smaller units of meaning (e.g., *hopelessness* contains three morphemes: *hope, -less*, and *–ness*).

Description

A morpheme may be an entire word or a part of a word. When a morpheme is an entire word (e.g., *dog*), it is referred to as a free morpheme. When a morpheme must be added to another morpheme in order to be used, it is referred to as a bound morpheme. Morphemes that can be added to the beginning of words are referred to as prefixes (e.g., *re-* as in *rewrite*). Morphemes that can be added to the end of words are referred to as suffixes (e.g., *-less* as in *childless*). Both prefixes and suffixes are common in English. Other languages also have morphemes that can be added to the middles of words. Such morphemes are referred to as *infixes* [1]. When bound morphemes are added to a word, the resulting word may be the same part of speech (i.e., noun, verb, adjective, etc.) as the word to which the bound morpheme is added. Such bound morphemes are referred to as inflectional morpheme (e.g., *-s* as in *chairs* and *–ing* as in *singing*). When the part of speech of the resulting word is different from the part of speech of the word to which the bound morpheme is added, the bound morpheme is referred to as a derivational morpheme (e.g., *-er* as in *thinker* because *think* is a verb and *thinker* is a noun).

Research on reading comprehension has shown that when readers process words in sentences, they are processing the individual morphemes within the word. Research on reading in English has shown that words containing more than one morpheme take longer to read than words containing one morpheme [2]. Recent research has shown similar results for the reading of Hebrew [3] and Finnish [4]. These results suggest that the processes involved in identifying individual words involve a stage of processing in which the subcomponents of a word (or morphemes) are identified [5].

Languages differ in the average number of morphemes per word. Languages, such as Finnish and Hungarian, have high numbers of morphemes per word [6]. For example, in Finnish, words may contain two or more nouns that are joined together (e.g., *lumi* = snow, *lumlpallo* = snowball, *lumipallosota* = snowball fight, *lumipallosotatantere* = snowball fight field) [4].

Relevance to Childhood Development

As children acquire the grammatical rules of language, they learn how to use morphemes appropriately. For example, the bound morpheme re- can be added only to words that refer to an activity that can be repeated. Children somehow learn that the combinations *resleep* or

reknow are not typical usages. The acquisition of morphemes typically begins during the second year of life [7]. Research by Roger Brown in 1970s showed that morphemes are acquired in a specific order. The present progressive *–ing* and the plural *–s* are acquired first and second, respectively. Contractions (e.g., *he's* for *he is* and *she's* for *she has*) are acquired last [8].

Difficulty in using morphemes appropriately is common in young children. For example, most children produce overregularizations, such as *broked* or *mices*, in which they add a suffix to word that has an irregular form. Overregularizations are normal and cease to occur as the child learns which words are irregular and do not take the suffix and which words are regular as do take the suffix. However, some individuals may have difficulties with morphemes throughout their life. These individuals may have a language disorder referred to as Specific Language Impairment (SLI). Because affected individuals often have family members with similar difficulties, SLI can be inheritable [9].

As children begin to learn to read, their awareness of morphemes may influence their performance. Recent research has shown that children with higher levels of awareness of morphemes (or morphological awareness) had higher levels of reading ability than children with lower levels of morphological awareness. This research also showed that reading ability was related to sensitive to the prosody of words. The children who displayed the highest levels of reading ability scored high on both morphological awareness and prosody [10].

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Morphology

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Synonyms

Grammar; Syllable structure; Syntax; Word structure

Definition

Morphology is the study of how words are formed through the combining of minimal, meaningful units of sound (morphemes) according to the word-sound rule system of a given language.

Description

Morphology is the study of the rules that tell how meaningful sounds (morphemes) are combined into words and have meaning in a language. A morpheme is the smallest meaningful unit of a language. Morphemes can be classified as free, bound, inflectional, and derivational. Free morphemes are units that have meaning and can stand alone, such as "is" or "cat." Bound morphemes are minimal units that must be attached to free morphemes to have meaning, such as plural "-s" in "cats." There are two types of bound morphemes, inflectional and derivational. Inflectional morphemes include bound morpheme forms that change the word to which it is attached by plurality, possession, tense, or degree. An example of an inflectional morpheme is the "*-ed*" inflection added to "jump," indicating past tense by forming "jumped." The seven inflectional forms in English are: plural "*-s*," possessive "*-s*," third person singular "*-s*," past tense "*-ed*," past participle "*-en*," present progressive participle "*-ing*," comparative "*-er*," and superlative "*-est*." A derivational morpheme is a bound morpheme form that changes the grammatical class of the word to which it is attached. An example of a derivational morpheme is the "*-er*" inflection added to "jump," changing the verb "jump" to a predicate adjective in "*He is a jumper*." There are 14 morphemes that are *grammatical* morphemes in English. These were identified by Brown [3] as important in language development based on the diary accounts of three young children's spontaneous language production. The 14 grammatical morpheme forms are: present progressive "*-ing*," prepositions "*in*" and "*on*," plural "*-s*," past tense irregular verbs, possessive "*-s*," uncontractible copulas, articles, regular past tense "*-ed*," regular third person singular, irregular third person singular, uncontractible auxiliary, contractible copula, and contractible auxiliary (see Table 1 below).

Morphology. Table 1 Rank order of acquisition of Brown's 14 grammatical morphemes [3, 4]

Rank	Morpheme	Example
1	Present progressive "-ing"	*Jumping*
2	Preposition *in*	*In*
3	Preposition *on*	*On*
4	Regular plural inflection "-s"	*Toys*
5	Past tense irregular	*Was*
6	Possessive inflection	*Mom's*
7	Uncontractible copula	*Is he here?*
8	Articles	*A, the*
9	Regular past tense	*Jumped*
10	Regular third person singular	*She jumps.*
11	Irregular third person singular	*He does.*
12	Uncontractible auxiliary	*Is she jumping?*
13	Contractible copula	*She's pretty.*
14	Contractible auxiliary	*He's tall.*

Development

Tracking children's understanding and use of these grammatical morphemes is a convenient and reliable method for measuring language development. As children learn the morphology of a language, they demonstrate understanding and use of grammatical morphemes. Therefore, the absence or disordered production of grammatical morphemes is often used as a marker for language disorder. In children who are typically developing, other areas of language, such as sentence structure and vocabulary, usually become more complex, or more adult-like, as they incorporate morphological units into the language they use to make their thoughts, ideas, and wants known (expressive language). Morphological development is usually measured by counting the number of morphemes, both words and grammatical morphemes, in each sentence or utterance, and is reported in a calculation of mean length of utterance in morphemes (MLUm). Though recent research has questioned the soundness of MLUm as a measure for development in grammatical morpheme usage [8], it is still commonly used as a measure of how children use language to make their wants and needs known, and continues to be considered a well-known and robust gauge of grammatical development to an MLUm of 4.0 [3, 12].

Morphological development in children who are typically developing appears to be generally predictable [3, 4]. Using language samples gathered repeatedly over time from the same children, Brown [3] documented the approximate order of acquisition of 14 grammatical morphemes, and found that acquisition of these markers mirrored increases in MLUm. A study by DeVilliers and DeVilliers [4] demonstrated a similar order of acquisition of grammatical morphemes (see Table 1). However, recent research has indicated that different children may have a slightly different order in which they develop these markers. Therefore, the child's achieved MLUm should be used only as a general sign of language development [7, 13]. The order and age at which a child begins to use a given grammatical morpheme appear to be influenced by how often the morpheme is used in the language the child hears on a daily basis [6] and the child's cognitive development and emerging world knowledge [1, 5, 9, 11].

Morphological acquisition is not an all or none proposition. Children first say a grammatical morpheme on only some words followed by a "spread" of the grammatical morpheme by attaching it to other words. Further, the correct production of some grammatical morphemes disappears from children's speech only to re-emerge in a later stage. For example, the first past tense grammatical morpheme to develop is the irregular past tense, as in "*went*." Rather than adding a morphological marker to a present tense verb as in regular past tense "*-ed*," irregular past tense verbs are single vocabulary words; each word's internal structure is unique, as in "*drank*," "*ate*," and "*thought*." Young children first produce a relatively small vocabulary of irregular past tense verbs associated with everyday actions they can see or know, as in "*sat, fell,* and *went*." It appears these first examples of irregular past tense verbs are learned as single words and are not associated with the present tense or other tenses of the verb; "*ate*" is not associated with "*eat*." During the developmental language period in which past tense "*-ed*" emerges, children overuse the past tense "*-ed*" by adding it to irregular past tense items previously learned, as in "*wented*." As children learn the rule of past tense "*-ed*" it is supposed that they "break the code" of when to apply the marker and to which forms it is applied [9–11]. Soon after which, they once again produce irregular past tense forms correctly, "*went*."

The order of acquisition, above, is presented as an approximate order of mastery of grammatical morphemes. It is important to know that toddlers can understand what these grammatical morphemes mean before they are able to use them in their speech; understanding precedes use [2, 9–11].

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Mother only Families

►Single Parent Families

Motivating Operations

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Synonyms

Establishing operations; Incentives; Motivational events

Definition

Motivating operations (MOs) refer to a broad class of events that both increase and decrease the probability of behavior. These events function by changing the reinforcing value of stimuli and the behavior that has previously contacted these stimuli.

Description

Learning theory, specifically operant psychology, posits that a person's behavior is influenced by its consequences. Behavior is maintained when it produces pleasurable consequences (*positive reinforcement*) and avoids aversive consequences (*negative reinforcement*). However, the effects of positively reinforcing and negatively reinforcing consequences can change depending on a person's motivational state. Consider, for example, conditions of hunger and thirst. If a person has eaten a full meal, the reinforcing value of food is diminished. Similarly, after drinking a large amount, liquids will be less reinforcing. The converse of these conditions also is true: the reinforcing properties of food and liquid will be potent when a person has not consumed them between meals.

The preceding examples illustrate the concept of MOs. Essentially, a MO is any event, activity, or interaction that increases or decreases the effectiveness of consequences to function as reinforcement and the behavior that has been reinforced by those consequences. Some behavioral theorists have proposed that the term, *establishing operations (EOs)*, be reserved for manipulations that increase the reinforcing value of consequences, and the term, *disestablishing operations (DOs)*, be reserved for manipulations that decrease the reinforcing value of consequences. With this schema, EOs and DOs comprise the superordinate category of MOs.

In function, MOs involve momentary changes in states of deprivation and satiation. Using the example of socially reinforcing consequences, children are more likely to enjoy attention from peers and demonstrate behavior to attract such attention when they have been away from friends and classmates. Concerning parental attention, children may be less inclined to seek contact with their mothers and fathers if they have been with them all day compared to periods of separation such as being at school or summer camp.

Relevance to Childhood Development

Motivation is an essential concept in human psychology and child development. Various theories have been proposed to explain why children behave in different social contexts (family, school, athletic teams) and how to motivate exemplary actions. MOs represent an empirically testable principle to account for, promote, and predict behavior.

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Motivation

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Synonyms

Drive; Incentives; Inspiration; Purpose; Reason; Stimulus

Definition

Motivation is defined as the instinctual drive to accomplish a task or goal and is an incredibly important factor in determination of behavior. Such tasks or goals range from satisfying hunger to obtaining a certain job or degree. Within developmental and psychological fields, three leading theorists behind the concept of motivation are David McClelland, Abraham Maslow and J. B. Rotter.

Theories

David McClelland presented a theory of motivation which is directly connected to individuals' needs for power, affiliation and achievement. His theory has become known as acquired-needs or learned needs theory. It is an individual's desire or lack thereof, for these three needs that drives their development and ambition over their entire lifespan [2]. Through his analysis of these three concepts, McClelland was led to develop a well known psychological needs assessment instrument entitled the Thematic Apperception Test. As children develop their need for primarily academic achievement, as well as athletic achievement, accompanied by the concepts of power and affiliation motivate their development in biological, cognitive, and emotional areas.

Abraham Maslow is best known for his concept of Maslow's Hierarchy of Needs. The premise behind the theory is that individuals, regardless of age, are motivated by their instinctual drive to satisfy certain needs and desires [1]. The initial needs individuals are motivated to meet are the basic physiological needs of food, water, shelter and clothing. As the basic physiological needs are met, individuals are motivated to fulfill or meet other needs or desires, in particular, according to Maslow, safety needs, love and belonging needs, esteem needs, and finally the need for self-actualization. It is only after the basic needs are meet that individuals strive for the ultimate goal of self-actualization. Children are no exception to these motivating principles. In order to meet the basic physiological needs, children are motivated to learn how to request or cry for food, water, shelter and clothing. As they grow, they learn to adjust in order to continue to fulfill these needs.

J. B. Rotter examined the ideas of internal and external factors of motivation. According to Rotter, **Intrinsic motivation** consists of internal factors within a person, which are defined as biological drives or instincts [3]. Intrinsic motivation is characterized as an internal desire to obtain the task or goal. The completion of such tasks or goals evokes a sense of satisfaction and accomplishment. For example, when a child is learning to play a new game, intrinsic motivation for doing so would be an internal desire to obtain a goal set before them for their own personal satisfaction or feeling of success. Additionally, accomplishing the task would bring a certain sense of accomplishment, which represents an internal or intrinsic motivating factor.

Extrinsic motivation represents the rewards or pressures found from external factors, such as the recognition received for completing a task or goal or the desire to avoid the disappointment that may surface from important individuals in a person's life should the task not be completed. Extrinsic motivators are thought to be more powerful than intrinsic motivating factors. Continuing with the example of a child learning a new game, parental pride, expectations of peers, or simply having a new game to play with friends would all represent extrinsic or external motivating factors.

Whether the motivation comes from intrinsic or extrinsic factors, a significant component behind the progression of motivation is the expectations of the individual, expectations of what will or will not occur should a task be completed or a goal reached. For example, in taking a standardized test, an individual's expectations for how they will or want to score motivate the level of studying and preparation, as well as the amount of anxiety experienced going into the exam. Motivation is only one factor, but is an incredibly important factor in determining behavior.

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Motivational Events

►Motivating Operations

Motivational System

►Token Economies

Motor Aphasia

►Broca's Aphasia

Motor Area of the Brain

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Synonyms

Primary motor cortex

Definition

The motor area of the brain, also referred to as the Primary Motor cortex, is localized to the Precentral gyrus of the Frontal lobe and is responsible for carrying out.

Description

The motor area of the brain may well be a misnomer, although some use this terminology interchangeably with the Primary Motor cortex. While the latter is localized to the Precentral Gyrus of the Frontal lobe and is seen as the key player in the carrying out of purposeful movement, the full gamut of motor behavior is the end result of the collaboration of this region with an array other structures and neuroanatomical regions [2].

As noted, from a functional standpoint, the primary motor cortex is responsible for modulating the fine details required to carry out purposeful movement [3]. Specific cells in this region are directly linked with specific spinal motor neurons and motor nuclei in the cranial nerves [1]. This connection presents as direct pathways between cells of the primary motor cortex and output of the peripheral system such that lesions of a specific area of the motor cortex will lead to a loss of voluntary control over the specific area of the body with which that area is linked. This is arranged in a contralateral fashion such that motor actions of the right are controlled by left hemisphere functioning and motor actions of the left are controlled by right hemisphere functioning.

Working closely with the primary motor cortex is the Premotor cortex. These regions together may be seen as representing the card catalog of the library of movement. In comparison to one another, the Primary Motor cortex regulates movements that are lower order than those of the Premotor cortex [2]. This is due to the Primary Motor cortex merely housing the movements whereas the Premotor cortex is entrusted with organizing the movement sequences [2]. The contribution of the Premotor cortex to motoric functioning is directly related to its connections with essential subcortical areas and structures, such as the Basal Ganglia, which are crucial to the refinement of motor coordination and organization [1]. Prior to the Primary Motor cortex and Premotor cortex initiating motor activity they receive neuronal instruction from the prefrontal cortex which is charged with the duty of mapping out/planning those movements to be carried out [2]. Throughout the motoric process, the motor areas of the brain and the somatosensory cortex are networked with one another providing a reciprocal line of communication between one another such that feedback from the somatosensory system may be integrated into the process thereby refining the motor action [3].

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Motor Learning Difficulties

►Developmental Coordination Disorder

Motor Skills

Definition

A motor skill is a learned sequence of movements that combine to produce a smooth, efficient action in order to master a particular task.

Gross motor skills include lifting one's head, rolling over, sitting up, balancing, crawling, and walking. Gross motor development usually follows a pattern. Generally large muscles develop before smaller ones, thus, gross motor development is the foundation for developing skills in other areas (such as fine motor skills). Development also generally moves from top to bottom. The first thing a baby usually learns to control is its eyes.

Fine motor skills include the ability to manipulate small objects, transfer objects from hand to hand, and various eye–hand coordination tasks. Fine motor skills may involve the use of very precise motor movement in order to achieve an especially delicate task. Some examples of fine motor skills are using the pincer grasp(thumb and forefinger) to pick up small objects, cutting, coloring, writing, or threading beads. Fine motor development refers to the development of skills involving the smaller muscle groups.

Mournful

►Grieving

Mourning

►Bereavement
►Cross-Culture Perspective on Bereavement Springer

Movement

►Gestures

Movement, Response

►Behavior

Multibehavior Therapy

►Multimodal Therapy

Multicultural Education

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Synonyms

Cultural diversity; Diversity; Equity

Definition

Multicultural Education

Multicultural education refers to the process of educational reform that assures that students from all groups (e.g., racial, ethnic, socioeconomic, ability, gender) experience educational equality, success, and social mobility.

Description

As the diversity of our country continues to grow so does the number of diverse students entering our elementary and secondary schools. Multicultural education stems from the civil rights movements of the 1960s [2]. It is an educational strategy where students' cultures are used to develop effective classroom instruction and school environments. It supports the concept of culture, diversity, equality, success, and social mobility in the school setting. Sleeter and Grant [7] in their analysis of the phrase "education that is multicultural" stated that the entire education program should be designed to address the needs of diverse groups regardless of race, ethnicity, religion, exceptionality, or gender. This Social Reconstructionist approach strives to provide students with the skills necessary to become socially active ([2], p. 50).

Relevance to Childhood Development

Crushner, McClelland, and Phillip [3] suggest that developmental appropriate practice (DAP) involves providing learning environments, instructional content, and pedagogical practices that are responsive to the major attributes and salient needs and interest, which characterize and facilitate continuing development. This is accomplished through professional practices by educators who make constructive decisions about the education and

well-being of children based on: 1) what is known about child's development and learning. 2) what is known about the strengths, interests, and needs of each individual child in the group. and 3) knowledge of the social and cultural contexts in which children live. Thus, these changing dynamics require that teachers remain as learners throughout their careers.

The word *education* derives from the Latin word educare, meaning "to lead forth." It is important for educators to have a strong philosophy that guides their work in order to meet the challenges that diversity brings to the classroom. Hence, State and school districts expect teachers to have proficiencies or specific knowledge, skills and dispositions related to multicultural education by the time they finish their teacher education program. In working with students who come from different ethnic background, racial language, religious groups than the teacher, the development of dispositions that are supportive of diversity and differences is important. Students quickly become aware of the educators who respect their culture, believe they can learn, and value differences in the classroom [2].

Consequently, culture and language have become one of the most powerful factors in multicultural education. It helps to define who we are and influences our knowledge, beliefs, and values. In order to reach our students and "lead them forth" we must become "culturally sensitive," Giroux and Simon [4] spoke clearly of the importance of teachers understanding their own cultural identities and those of their students:

By ignoring the cultural and social forms that are authorized by youth and simultaneously empower and disempower them, educators risk complicity in silencing and negating their students. This is unwittingly accomplished by refusing to recognize the importance of those sites and social practices outside of the schools that actively shape student experiences and through which students often define and construct their sense of identity, politics, and culture ([2], p. 58).

Jodi Reiss [6] focuses on the importance of Language as a social construct. She states that its purpose is to communicate, in a process closely resembling First Language Acquisition children learning English communicate to make friends, participate in youth culture of sports, games, music etc. The following are some examples of some approaches and/ or strategies teachers may use in a classroom setting with diverse students:

- Through the process known as Natural Acquisition and by being immersed a English-language rich environment, students can develop language skills of everyday activities.
- As part of Stephen Krashen's [5] Five hypotheses, Monitor Model of Second Language Acquisition (SLA), he proposed the existence of an emotional filter, which influences how much actual learning takes place in relation to the comprehensive input. The Affective Filter can be conceived as the emotional wall that blocks input from reaching the brain. He states that the greater the self-confidence, the more motivation to learn. Ultimately; lowering the Affective Filter and allowing for more academic input.

Jim Cummins [1] mentions *scaffolding instruction* as a means of building upon student's prior knowledge. By tapping into a students' prior experiences we contribute to their cognitive demands in and outside of the classroom.

Merrill Swain's [8] concept of meaningful output has direct bearing on learning. The concept highlights the importance of small group interaction in long-term retention of both language and conceptual knowledge. Teachers can promote learning by choosing strategies that encourage students to negotiate meaning through paired or small group discussions.

Lev Vygotsky [9] *Zone of Proximal Development* (ZPD) which he defines as "the distance between" (a student's) actual development level as determined by independent problem solving, and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. ([6], pp. 4–10).

In conclusion, in order to meet the multicultural educational needs of our diverse student population educators are empowering themselves and actively engaging students in the learning process. This is being accomplished integrating student experiences in and out of the classroom and providing them with the necessary tools to become socially active in a competitive environment.

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Multifinality

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Synonyms

Developmental outcomes; Developmental pathways; Developmental trajectories

Definition

The concept that people can experience the same life events or have similar histories yet their developmental outcomes can vary widely.

Description

Multifinality literally means "many ends." This refers to people having similar histories (e.g., child sexual abuse, death of a parent, or a secure attachment history) yet their developmental outcomes can vary widely. For example, two children who were sexually abused could have very different outcomes despite extremely similar early experiences. One child might be well-adjusted yet another child might develop clinical depression. This concept is important because it encourages clinicians and researchers to examine entire developmental histories instead of only looking at symptom profiles. The field of developmental psychopathology (DP) brought this idea to light in its conceptualization of mental health and illness in children [1]. Researchers from the DP perspective de-emphasize a categorical diagnostic approach such as the traditional use of the DSM-IV. The traditional categorical clinical approach using the DSM-IV would require the child to have a certain number of depressive symptoms with a clear cut-off point for clinical relevance before treatment was warranted. Moreover, the symptoms must be present for a required length of time, in order for a child to be diagnosed with a "disorder" like depression. Using a DP approach, however, attention is focused on normal developmental tasks, such as the status of the child's attachments to caregivers, emotional regulatory abilities, and peer relations. If the child has failed to accomplish these normal developmental skills, prevention efforts might be implemented before a child's sad mood had the chance to develop into a diagnosable disorder. The changeability of symptomatology in children is emphasized from this perspective, and caution is directed at assuming that similar histories or profiles will inevitably result in similar symptoms or disorders later on. Thus, the concept of multifinality allows us to examine individual children's developmental trajectories in order to improve their developmental skills, rather than making generalized assumptions about how a certain type of child might "end up" [2].

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Multigenerational Family

►Extended Families

Multilevel Modeling

►Hierarchical Linear Modeling

Multimodal Therapy

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Synonyms

Multibehavior therapy; Systematic eclecticism

Definition

Multimodal therapy is a form of psychotherapy developed by Arnold Lazarus. It focuses on reducing psychological suffering and promoting personal growth as rapidly as possible. Multimodal therapy is based on the idea that humans are biological beings that think, feel, act, sense, imagine, and interact. Each of these modalities is thoroughly assessed in therapy in order to achieve a comprehensive and holistic understanding of the client and his or her social environment [2, 3].

Description

Multimodal therapy posits that human personalities are the products of ongoing behaviors, affective processes, sensations, images, cognitions, interpersonal relationships, and biological functions (referred to as drugs/biology). The first letters of each of those modalities form the acronym BASIC I.D. The fundamental assumption is that BASIC I.D. encompasses the entire range of human personality. There is no predicament, affect, accomplishment, dream, or behavior that cannot be understood through BASIC I.D. Multimodal therapy focuses on specific difficulties within a given modality as well as the interaction between the modalities. The multimodal framework identifies individual problems along with factors that may be maintaining those problems. The clinician is then able to identify interventions by examining the interactive aspects of the identified problems [2, 3].

Arnold Lazarus developed multimodal therapy within the context of ►behavior therapy and, later, cognitive behavior therapy. Lazarus recognized that merely addressing behaviors and cognitions in therapy was not sufficient enough to impact the many areas of psychosocial functioning. This led him to expand the traditional models to integrate additional domains for assessment and treatment. This was known as broad-spectrum behavior therapy then multi-behavior therapy prior to being termed multimodal therapy [2, 3].

Theoretically grounded in ►social learning theory, the application of multimodal therapy relies on technical eclecticism, which is the practice of utilizing techniques from various sources without also adhering to the theories or disciplines from which they were created. Multimodal therapists use various techniques in their approach in order to effectively treat a wide range of problems and personalities. Treatment is tailored to the individual client and several methods are utilized in order to identify specific problems within the various BASIC I.D. modalities. Specific therapeutic interventions are created for each identified problem through the processes of tracking and bridging. Tracking allows the therapist to determine the interactive effects across the BASIC I.D. in order to establish the sequential order of the client's cognitions, images, sensations, and behavior. Each client has a different sequential order or "firing order," which will call for a different corresponding set and sequence of treatments. The client is asked to note all stimuli and events that precede and accompany any negative emotional reactions in developing the firing order. In a parallel process, called bridging, the therapist is attuned to the client's primary modality and will access the primary modality to obtain reactions in another modality. Multimodal therapists are expected to consult relevant research and favor research based techniques over non researched based techniques [4].

Multimodal therapy has been applied and adapted to the treatment of children and adolescents. In Keats's adaptation to children [1], the BASIC I.D. acronym shifts to the HELPING acronym. The seven HELPING modes are those of Health, Emotions-feelings, Learning-school, People-personal relationships, Imagination-interest, Need to know-think (Notions), and Guidance of acts, behaviors, and consequences. While the HELPING modes are the same as the BASIC I.D., the HELPING acronym is particularly useful in communicating concepts to parents, teachers, and children. The multimodal approach allows the therapist to systematically assess and formulate the child's problems in order to determine where the child is primarily experiencing his or her difficulties. Using the HELPING acronym as a map, the main therapeutic task is to determine which interventions can be utilized in order to improve the child's difficulties. Common treatment goals, addressing each of the seven HELPING modes, include, but are not limited to: appropriate diet and exercise; expression of feelings, joy attainment, and anxiety management; auditory appreciation, motor coordination, study skills, and sensory awareness; getting along with other children and communicating with adults; developing self-worth, awareness of imagery, and meditation; improving decision making and identifying irrational ideas; and attention-paying and assertiveness training [1].

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Multiple Intelligence

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Definition

Howard Gardner's theory of multiple intelligences addresses the unique talents and gifts of children.

Understanding multiple intelligences can help clinicians look for and identify strengths, natural pathways for learning, and alternative avenues for working with patients. Through this identification, therapists can encourage greater self-awareness and self-acceptance, and they can open doors to alternative arenas where children can succeed.

Description

Gardner's [2] definition of intelligence comprises emotional, behavioral, and mental information processes put into motion by a cultural environment; in this environment, works are produced that are highly esteemed in culture (p. 33). These intelligences emerge and respond differently than the intelligence quotient as defined by traditional operational statistical classifications. Creative people such as weavers, painters, sculptors, and glass blowers are valued because of the artifacts they produce; performances by dancers, singers, and musicians are also respected. These kinds of intelligence are not recognized in traditional definitions, however. The multiple intelligences theory allows for greater respect of creative individuals and cultures by providing empirical data that validates disciplines previously rejected in individual intelligence assessments [1]. Gardner also examined cognitive profiles of all kinds of people, including those with special needs such as learning disabilities, autism, and savant syndrome. The assessed children had extreme problems living; they might be considered cognitively unstable and possessing low intelligence, yet these children might have other strengths not manifested previously ([1], p. 8). Gardner compared how these same children would be measured using IQ assessments; such children would be considered cognitively jagged. According to Gardner, IQ tests only measure logical or logical-linguistic capacities. In this society, we are nearly "brainwashed" to restrict our notions of intelligence to the capacities used to solve logical and linguistic problems ([1], p. 14).

Howard Gardner's Theory of Multiple Intelligences

Howard Gardner to date suggested that there are eight intelligences; these intelligences are as follows:

1. Musical: Children with musical intelligence often sing or tap out beats. They are more aware of sounds and will notice sounds that most people do not. Musical children are discriminating listeners and hear music in mundane sounds.
2. Linguistic: Children with linguistic intelligence excel at reading, writing, storytelling, and doing word puzzles.
3. Logical-mathematical: Children with this type of intelligence are interested in patterns, categories, and relationships. They are good at solving mathematic problems, conducting science experiments, and playing strategy games.
4. Body-kinesthetic: These children process knowledge through their senses. They usually excel at athletics and dance.
5. Spatial: These children think in images and pictures. They are sometimes good at mazes and jigsaw puzzles. These children spend time drawing, building (with blocks, Legos, or erector sets), and daydreaming. They also like to take things apart and put them back together.
6. Interpersonal: This type of intelligence cultivates children who are leaders among their peers. Communications with others comes easy for these children, and they understand others' feelings. They also understand others' motivations, and they are outgoing.
7. Intrapersonal: These children are introverted. They are aware of their own feelings, take care of themselves, and are self-motivated.
8. Naturalist: This type of intelligence allows children to distinguish categories within, classify, and remain in tune with the environment. These children like outdoor play, and they are likely to make good farmers, gardeners, botanists, geologists, florists, and archeologists.

Parents, friends, and teachers can observe these areas of intelligence. As Gardner [1] explained, "I believe that we should get away altogether from tests and correlations among tests, and look instead at more naturalistic sources of information about how peoples around the world develop skills important to their way of life" (p. 7).

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Multisensory Teaching

►Orton-Gillingham Reading Method

Multisystemic Influences

►Bioecological Approach to Development

Muscle Dysmorphic Disorder

►Dysmorphia

Muscle Relaxants

►Depressants

Muscular Dystrophy

Definition

Muscular dystrophy is a group of inherited disorders that involve muscle weaknessmuscle weakness and loss of muscle tissue, which get worse over time.

Description

Muscular dystrophies, or MD, are a group of inherited conditions, which means they are passed down through families. They may occur in childhood or adulthood. There are many different types of muscular dystrophy. They include:

- Becker muscular dystrophyBecker muscular dystrophy
- Duchenne muscular dystrophyDuchenne muscular dystrophy
- Emery-Dreifuss muscular dystrophy
- Facioscapulohumeral muscular dystrophyFacioscapulohumeral muscular dystrophy
- Limb-girdle muscular dystrophy
- Myotonia congenitaMyotonia congenita
- Myotonic dystrophy

Symptoms

Symptoms vary with the different types of muscular dystrophy.

All of the muscles may be affected. Or, only specific groups of muscles may be affected, such as those around the pelvis, shoulder, or face. Muscular dystrophy can affect adults, but the more severe forms tend to occur in early childhood.

Symptoms include:

- Mental retardation (only present in some types of the condition)
- Muscle weakness that slowly gets worse
- Delayed development of muscle motor skills
- Difficulty using one or more muscle groups
- DroolingDrooling
- Eyelid droopingEyelid drooping (ptosisptosis)
- Frequent falls
- Loss of strength in a muscle or group of muscles as an adult
- Loss in muscle size
- Problems walkingProblems walking (delayed walking)

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Music

►Media

Music Therapy

►Play-Group Therapy

Musical Intelligence

►Gardner's Theory of Multiple Intelligences

Mutism

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Synonyms

Deaf-mutism; Selective mutism

Definition

Mutism is a rare speech disorder in which the individual demonstrates the inability or unwillingness to speak.

Description

The term "mutism" refers to an individual who is mute and cannot or does not talk [1]. It is specifically applied to people who, due to profound congenital (or early) deafness, are unable to use vocal speech and thus, are diagnosed with ►deaf-mutism. The word "mutism" comes from the Latin "mutus" meaning unable to speak. In the Diagnostic and Statistical Manual of Mental Disorders–IV, ►selective mutism is described as a rare psychological disorder in children characterized by a consistent failure to speak in situations where talking is expected [2]. The child has the ability to converse normally, and does so, for example, in the home, but consistently fails to speak in specific situations such as at school or with strangers. The onset of selective mutism is typically before age five but it is often not formerly diagnosed until a child enters the school system. It is estimated that 1 in every 1,000 school-age children are affected by selective mutism.

Relevance to Childhood Development

Affected children are typically shy, particularly when encountering unfamiliar surroundings, situations, or unfamiliar individuals. Particularly in young children, selective mutism can be confused with an autism spectrum disorder [2], especially if the child acts particularly withdrawn around unfamiliar individuals, including clinicians. Unfortunately, this can lead to incorrect diagnosis and consequently, treatment. Individuals with selective mutism can often communicate normally when in familiar situations with familiar individuals or caregivers, as can many individuals on the autism spectrum. If a child is not speaking mainly in social situations (i.e., will speak in the home or with familiar individuals), this is likely not an autism spectrum disorder, but may be selective mutism. Additionally, it is important to note that children with selective mutism typically show normal growth in most developmental domains whereas children on the autism spectrum do not. Finally, nonverbal social engagement typically occurs in children diagnosed with selective mutism but not autism.

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Mutual Friend

►Intimate Friend

Myelin Sheath

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Definition

►Myelin sheath*:* Myelin sheath refers to a lipid-based, protein covering that encases the axons of the brain that helps improve the transmission of neuronal impulses.

Description

The myelin sheath within the central nervous system refers to the lipid-based covering that encases the axons of the brain that serves the primary role of speeding along, and thus improving, the transmission of neuronal impulses. The myelin sheath is to axons of the brain what rubber encasing is to telephone lines. In regards to the latter, the rubber encasing increases the speed of transmission and reduces the presence of static thereby improving overall transmission. Much in the same way, the myelin sheath of the brain speeds up neuronal communication by allowing for more continuous and rapid transmission of impulses [2]. It is this lipid-based covering that gives neurons their characteristic white appearance, thus resulting in the term white matter. The myelin sheath is formed by Oligodendrocytes in the CNS and by Schwann cells in the PNS [1]. This occurs by way of the projections of the surface membrane of both cells fanning out and coiling around the axon of neurons to specifically form the myelin sheath [3]. The process by which axons are encased in myelin is referred to as myelination. This process begins in some areas slightly before birth and continues until early adulthood. The pattern by which myelination of the CNS occurs follows an in-to-out and back-to-front progression. As such, myelination first onsets within the Spinal Cord followed then by myelination of subcortical regions and then on into cortical areas [3]. While white matter/myelin may be negatively impacted by a multitude of presentations, demyelinating diseases such as Multiple Sclerosis are most commonly associated with this occurrence as they lead to degradation of myelin within the system, thus reducing the efficiency of neuronal transmission in those areas and, in turn, leading to symptom manifestation.

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Myelination

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Definition

Myelination refers to the process by which axons are enveloped in a myelin sheath, which is lipid-based covering that serves to improve neuronal transmission.

Description

Myelin refers to the lipid-based sheath that encases axons within the nervous system [3]. The relevance of this, from a functional standpoint, corresponds with the fact that this increases the speed and efficiency of neuronal impulse transmission by acting as an electric insulator that increases conduction velocity [4]. Metaphorically speaking, myelin is to axons what the rubber encasing is to telephone wires. It reduces static while increasing speed of transmission. Essentially, it ensures that the impulse gets from the beginning of an axon to the end [1]. The myelin sheath is white appearance which is the basis for the regions and axons that are heavily myelinated being referred to as white matter. Myelination is the process by which the axons are enveloped in this myelin sheath. Within the Central Nervous System Oligodendrocytes are responsible for the formation of Myelin whereas Schwann cells play this role in the Peripheral Nervous System [2]. It is the projections of the surface membrane of each of these cells that fans out and coils around the axons to form the myelin sheath [4]. In comparison to one another, where one Oligodendrocyte can form myelin sheaths around several axons in the CNS, one Schwann cell can only myelinate one peripheral axon [2]. The entire process of myelination takes some time and to some extent corresponds with cognitive maturation. During development of the CNS, as cellular migration is nearly complete, the process of myelination first beings [4]. From this starting point until the process is complete, which may not be until one is well into adolescence and early adulthood, the process of myelination follows a particular pattern. Specifically, myelination first onsets within the Spinal Cord followed then by myelination of subcortical regions and then on into cortical areas [4]. As a whole, the progression of myelination may be depicted as occurring in a back-to-front and in-to-out pattern. Given this it makes complete sense that those skills that are of the highest-order (e.g. abstract reasoning) do not emerge until adolescence and why behaviorally there is staunch differences between the behavioral inhibition abilities of a 10-year old in comparison to a 3-year old as such functional control relies on more anterior systems.

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Myopia

►Nearsightedness

Myslee

►Ambien (Zolpidem)

N

N/A

►Trust Versus Mistrust
►Paraplegia

Narcissism

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Definition

Havelock Ellis (1898; 1933 in Joines & Stewart) was the first person to use the term narcissism in a psychologically significant way, and he conceptualized it as autoeroticism.

Paul [10] used the term narcissism to describe the perversion of being preoccupied with the sight and pleasure of one's own body.

Sigmund [3] described narcissism as a normal phase of development between auto-eroticism and object-love. Later he described narcissistic libidinal type which corresponds to the current DSM description of Narcissistic Personality Disorder.

Description

The Freudian Theory of Narcissism

Freud suggested self-love might be a normal component of the human psyche, and might be the desire and energy that drives our instinct to survive. He called this: Primary Narcissism (Joines & Stewart).

According to Freud we are not born with a sense of ourselves as individuals, or ego. The ego only develops during infancy and the early part of childhood, as the outside world, usually in the form of parental controls and expectations, intrudes upon primary narcissism, teaching the individual about the nature and standards of his social environment from which he can form the ideal ego, an image of the perfect self towards which the ego should aspire (Joines & Stewart).

Freud regarded all libidinous drives as fundamentally sexual and suggested that ego libido (libido directed inwards to the self) cannot always be clearly distinguished from object-libido (libido directed to persons or objects outside of ourselves) (Joines & Stewart).

An aspect frequently associated with Primary Narcissism appears in an earlier essay, "Totem and Taboo" [3], where he describes his observations of children and primitive people, which he called "magical thinking." An example of magical thinking would be believing that you can have an effect on reality by wishing or willpower. This demonstrates a belief in the self as powerful and able to change external realities, which Freud believed was part of normal human development (Joines & Stewart).

Secondary Narcissism

According to Freud, secondary narcissism is a pathological condition which occurs when the libido withdraws from objects outside of the self. Freud further claimed that it is an extreme form of the narcissism that is part of all of us (Joines & Stewart).

Narcissism, Relationships, and Self Worth

According to Freud, to care for someone is to convert ego-libido into object-libido by giving some self-love to another person, which leaves less ego-libido available for primary narcissism and protecting and nurturing the self. When that affection is returned so is the libido, thus restoring primary narcissism and self worth. Any failure to achieve, or disruption of, this balance causes psychological disturbances. In such a case primary narcissism can only be restored by withdrawing object-libido (also called, object-love), to replenish ego-libido (Joines & Stewart).

According to Freud, as a child grows, and his ego develops, he is constantly giving of his self-love to people and objects, the first of which is usually his mother. This diminished self-love should be replenished by the affection and caring returned to him (Joines & Stewart).

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

Relevance to Childhood Development

During the practicing sub-phase of the separation-individuation process [9], the child goes through a normal, healthy period of narcissism. During this time, the child feels he is the center of the universe, the world is constructed to meet his needs, all he has to do is cry, and people take care of him. This period of narcissism is critical for normal development of healthy self esteem [8].

Gradually the child's grandiosity is deflated as he experiences narcissistic wounding. He learns he is not the center of the universe and that he has to get his needs met in cooperation with other people getting their needs met. If this wounding does not happen, the child does not learn to accommodate the needs of others [8].

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Narcolepsy

Definition

Narcolepsy is a chronic neurological disorder caused by the brain's inability to regulate sleep-wake cycles normally. At various times throughout the day, people with narcolepsy experience irresistable bouts of sleep. If the urge becomes overwhelming, individuals will fall asleep for periods lasting from a few seconds to several minutes. In rare cases, some people may remain asleep for an hour or longer. In addition to excessive daytime sleepiness (EDS), three other major symptoms frequently characterize narcolepsy: cataplexy, or the sudden loss of voluntary muscle tone; vivid hallucinations during sleep onset or upon awakening; and brief episodes of total paralysis at the beginning or end of sleep. Narcolepsy is not definitively diagnosed in most patients until 10 to 15 years after the first symptoms appear. The cause of narcolepsy remains unknown. It is likely that narcolepsy involves multiple factors interacting to cause neurological dysfunction and sleep disturbances.

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Narrative Conversations

►Personal Narratives

Narrative Therapy

►Constructivist Psychotherapy

National Association of School Psychologists (NASP)

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Definition

A professional organization for school psychologists.

Description

NASP's Mission

NASP represents school psychology and supports school psychologists to enhance the learning and mental health of all children and youth.

The National Association of School Psychologists distributes two publications: *School Psychology Review*, which

is the second-largest psychology academic journal and includes research and theory related to school psychology, and *Communiqué*, which is the official newspaper of NASP, covering news, events, innovative practices, legislative developments, and other topics relevant to the field.

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Native Language Acquisition

►Language Acquisition

Nativist Theory

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Synonyms

Innate language acquisition; Nature vs Nurture debate

Definition

A set of theories which contend that human abilities and developmental processes are innate and hard-wired at birth. These theories inform beliefs about developmental processes most closely associated with initial language acquisition.

Description

Language acquisition is the study of the processes by which a person learns a language. Nativist theories hypothesize that language is an innate fundamental part of the human genetic make-up and that language acquisition occurs as a natural part of the human experience. Nativist theorists argue that children are born with an innate ability to organize laws of language, which enables children to easily learn a native language. They believe that children have language-specific abilities that assist them as they work towards mastering a language. This notion is often times contrasted to the behavioralist perspectives of Skinner and Watson who argued that language (i.e., verbal behavior) is an operant class of behaviors that are learned through modeling, then shaped and sustained through reinforcement processes. Under a behavioral framework external sources of development are considered most pivotal to language acquisition while a nativist framework holds that the process is much more internally driven.

Perhaps the most well known nativist theorist, Noam Chomsky, hypothesized that children are born with a hard-wired language acquisition device (LAD) in their brain. This idea was later expanded into the concept of "universal grammar," which maintains that most languages have quite similar basic underlying structures, and specific languages have rules that transform these underlying structures into specific patterns found in any given language. As children hear their parents speak they unconsciously recognize and assemble the rules for the particular language being acquired. Under this theory, the presence of "universal grammar" in the minds of children allows them to deduce the structure of their native language simply by being exposed to it.

Relevance to Childhood Development

Nativist theories posit that children are born with the innate ability to acquire language and thus are able to acquire and master the grammar of their native language by the age of three. Researchers who support nativist theories believe in the existence of a critical period of development, specific time frames which environmental exposure is needed to stimulate a congenital trait. Eric Lenneberg, a linguist and neurologist, believed that the critical period for language acquisition ends around the age of 12. Nativist theories support this notion and believe that if a native language is not learned before this age, it can never be learned in a normal, natural manner or to a fully functional state.

In addition, research on brain structure and neurological activity also supports the existence of a critical period, but postulates that the critical period for initial language development is much earlier than age 12 although this period may continue until age 12 simply with less significant neurological foundations. This research suggests that brain growth is rapid and expansive up to the age of two with children of this age possessing up to 50% more synapses than a normally developed adult. Furthermore this research establishes that until the age of seven, the number of neurological synapses in children is greater than that of adults. However, neurological researchers conclude that the period from birth to 2 years is the most critical period for language acquisition associated with brain structure. After this period, researchers suggest that motivation, opportunity, environment, and personality are more salient factors in language acquisition than the role of brain structure similar to the developmental processes associated with second language acquisition.

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Natural Distribution

►Normal Curve

Natural Environment Training

►Social Skills Training

Natural Language

►Pragmatics

Natural Learning

►Whole Language Approach

Natural Observation

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Synonyms

Direct observation; Field observation; Naturalistic observation

Definition

Studying or assessing individuals as they interact in their typical environment.

Description

During an observation, there is no experimental manipulation, and data are recorded under the conditions that occur in the environment. Specifically, natural observation is a technique used in research and assessment, which is similar to direct observation, where information regarding an individual or individuals is gathered immediately while the individual's behavior occurs naturally their everyday environment, rather than a laboratory or clinical setting [1]. Information gathered during observations may be used in order to identify environmental variables necessary to create an artificial laboratory or clinical environment in which to assess or conduct research in, to identify areas which need assessment or research, or may garner the information necessary when research or assessment is being conducted.

While the methods in which information is gathered during observations vary, standardized methods have been developed, such as behavioral checklists. Methods of observations vary as well, sometimes occurring by video-taping an individual and recording data afterwards. However, most observations occur in real-time with the observer in the room, but the observer may be hidden or distanced from the individual(s) being observed in some way.

There are some problems with natural observation. For instance, although an observation may be structured, it is difficult to exert complete control over the environment. This means that the information gathered during an observation must be evaluated carefully, as it may not be possible to identify definitive relationships between an individual's actions and the environment [2]. Further, an individual's behavior may change solely as a factor of being observed, known as reactivity. This is often controlled by the observer being hidden from the individual, such as observing through a two-way window. Observer bias, or that an observer's information is gathered based on what they believe may happen versus what actually occurs, is another threat to the results of a natural observation. This is often controlled by two or more observers independently observing and collecting information. Information is then compared to ensure it is being collected consistently, referred to as inter-observer agreement. Further, the development and use of structured data collection tools, as well as an emphasis on operationally defining what is being observed, has diminished the threat of observer bias greatly in many instances. The

information garnered from an observation of an individual in their natural environment is often greatly useful and important, and oftentimes more valid than information gathered from more indirect measures, such as interviews, where the individual is never observed. As an individual's natural environment encompasses all the variables that may influence or affect an individual's behavior, observation in an individual's specific environment ensures that these variables are present, and important variables are not absent during observation.

Relevance to Childhood Development

Natural observation has become a cornerstone of researching, assessing, and evaluating the treatment of children's behavior. Observations of how children interact with each other and their environment are often conducted in order to gather information for research, whether conducting an experiment directly in the environment, or gathering information to assist in formulating hypotheses, structuring studies in laboratory environments, or validating data that had been gathered in a laboratory setting. Further, children are often assessed in the same way, through use of behavior checklists or similar assessment tools, in order to ensure that all variables that are present when a specific behavior occurs are also present during an assessment. Such assessments are often used in schools, and may be used for diagnostic purposes as well as assessments conducted prior to treatment [3]. The effectiveness of a particular treatment may be evaluated by conducting natural observations, whether treatment occurs in that environment, or evaluating the utility of a treatment to allow for behavior change outside of a clinical or laboratory setting. Natural observation has been used to study various behaviors of preschool children, children's development, and aggression, among many other subjects.

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Naturalist Intelligence

►Gardner's Theory of Multiple Intelligences

Naturalistic Observation

►Natural Observation

Nature vs Nurture Debate

►Nativist Theory

Nature vs. Nurture

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Synonyms

Nature-nurture controversy; Nature-nurture issue

Definition

The debate over the extent to which development is influenced by a person's genetics or a person's environment.

Description

This controversy involves the question whether human behavior is predominately due to nature (heredity) or nurture (environment). Nature includes inborn biological information received from one's parents at the moment of conception. Nurture involves complex factors from the physical and social world that influence before and after birth. Those who stress the importance of nature point to the commonalities in growth and development across cultures. People typically progress through similar stages of development, from infancy to adulthood. Supporters of the nature perspective recognize that extreme environments can retard development, but also contend that basic developmental patterns are genetically programmed into humans. However, there are those who emphasize the importance of nurture in development, including environmental factors such as nutrition, medical care, physical accidents, family, schools, community, and culture.

Despite the age-old debate on this issue, most developmentalists agree that human development and behavior is affected by a combination of nature and nurture. For example, puberty occurs sometime between about age 9 and age 16 in every culture, with the timing being influenced by environmental factors such as diet.

No aspect of development is influenced solely by heredity or environment, but the interaction of the two. The question should not be whether nature or nurture influences development rather how these two influences interact together. Even though agree has been reached about the shared impact of nature and nurture, disparate theories still exist as the relative emphasis on nature or nurture.

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Nature-Nurture Controversy

►Nature vs. Nurture

Nature-Nurture Issue

►Nature vs. Nurture

Near-Infrared Imaging

►Near-Infrared Spectroscopy (NIRS)

Near-Infrared Spectroscopy (NIRS)

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Synonyms

Chemometric spectroscopy; Near-infrared imaging; Optical imaging; Optical tomography; Oximetry

Definition

A technique used to monitor changes in blood volume and oxygenation levels in living tissue through analysis of the properties of emitted and reflected light.

Description

The term *spectroscopy* refers to techniques that use light and its properties to analyze the chemical composition of various substances. Near-infrared spectroscopy (NIRS) uses light waves in the red and near-infrared (NIR) ranges of the light spectrum to monitor changes in oxygen and blood volume levels in human tissue. These light waves can harmlessly penetrate several centimeters into tissue prior to being absorbed or reflected; measurement of the wavelengths of the reflected light provides information on the degree to which various *chromophores*, or molecular units that absorb light, are present in the tissue.

NIRS techniques generally involve measurement of the chromophore *hemoglobin*, an iron-containing protein in red blood cells that transports oxygen from the lungs through the bloodstream for use by the body in energy-generating metabolic processes. Hemoglobin molecules that are actively involved in transporting oxygen in the bloodstream are sometimes referred to as *oxyhemoglobin*; non-oxygen-carrying hemoglobin molecules are known as *deoxyhemoglobin*. Oxyhemoglobin molecules in the bloodstream absorb more NIR light, but less red light, than deoxyhemoglobin. Therefore, more red-wavelength than NIR-wavelength light will be reflected by tissue that contains greater concentrations of oxyhemoglobin. These light absorption differences, which also account for the visible difference in color between oxygenated and deoxygenated blood, permit estimation of both oxyhemoglobin and deoxyhemoglobin levels in living tissue.

The pulse oximetry devices traditionally used in medical settings to provide measures of cardiopulmonary function represent a relatively simple use of NIRS technology. Generally affixed to a finger or an earlobe, a pulse oximeter shines light at multiple wavelengths into and through flesh. Detectors positioned on the other side of the finger or earlobe measure the intensity and wavelengths of the light transmitted through the tissue. By providing information on the relative concentrations of oxyhemoglobin and deoxyhemoglobin in the tissue, pulse oximetry indicates whether blood oxygen levels are adequate to support healthy tissue functioning. More recently, NIRS has been used to estimate levels of activity in the frontal regions of the human brain by measuring blood flow and oxygenation patterns in the prefrontal cortex; to

date, however, application of NIRS as a functional neuroimaging technique has occurred mainly in research, rather than clinical, settings. Additionally, a number of small-scale studies have examined whether this technology can be used to differentiate malignant tumors from healthy tissue, since tumors contain different concentrations of chromophores than surrounding tissue. While these studies suggest that tumor-specific NIR light absorption and reflectance patterns can be identified, further research is needed to examine the diagnostic utility of this technology.

NIRS seems to pose few health risks, since it does not involve the use of radioactive materials or cause damage to skin or underlying tissues. It has several practical advantages over more traditional neuroimaging technologies; specifically, it uses relatively inexpensive materials (such as LED light sources), is portable and lightweight, and permits subjects to speak, write, move, and assume a variety of positions while data are being collected. However, current NIRS technology also has several limitations. Data obtained via NIRS represent estimates, rather than absolute measures, of blood volume and oxygenation. Since NIRS measures physiological markers of changes in brain activation patterns, rather than actual neuronal activity, its temporal resolution is not as good as more direct measures of brain functioning, such as electroencephalography (EEG) or magnetoencephalography (MEG). Additionally, while NIRS offers good levels of spatial resolution, the utility of NIRS as a neuroimaging technology has, to date, been somewhat limited by neurophysiological differences among individuals, which make it difficult to reliably establish the precise location(s) in the brain associated with different activation patterns using NIRS alone. Finally, since the red and near-infrared light waves emitted by NIRS devices can penetrate only a few centimeters into brain tissue, the technology does not permit functional imaging of deeper layers of cortical tissue, or of subcortical structures.

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Nearsightedness

Synonyms

Myopia

Definition

The inability to see objects at a distance clearly.

In people with myopia, the eyeball is slightly longer than usual from front to back. Light rays which make up the images you see, focus in front of, rather than directly on the retina, the light-sensitive part of the eye. When this happens, objects at a distance seem blurry and unclear.

Progressive myopia or nearsightedness is predominantly caused by genetics. Children inherit a tendency to develop the eye condition from their parents. The manner in which a person uses their eyes, such as often performing detailed or up-close work, may also have an influence on the progression of nearsightedness.

Nearsightedness in children is most commonly treated by corrective eye wear usually with glasses or contact lens. In some cases, depending on the severity of their myopia, when children reach adulthood, surgical procedure such as Lasik surgery can correct the myopia.

Neck of Uterus

►Cervix

Need for Achievement

►Achievement Motivation

Nefazodone

Synonyms

Serzone®

Definition

A prescription medication FDA approved for the treatment of depression.

Description

This medication is a serotonin and norepinephrine reuptake inhibitor available as a tablet. This medication is no longer available as brand name Serzone®.

The recommended starting dose for this medication is 100 mg taken two times a day. Maximum suggested total daily dose is 600 mg. This medication should only be taken as directed by a doctor. This medication may need to be taken for four weeks before improvement in symptoms is seen.

This medication may be taken with or without food. Avoid drinking alcohol. Tell your doctor if you have a history of a seizure disorder or liver disease.

Concomitant use in patients taking monoamine oxidase (MAO) inhibitors is not advised.

Some side effects are listed here: confusion, dizziness, drowsiness, dry mouth, constipation, diarrhea, and trouble sleeping. Certain side effects may go away during treatment. Tell your doctor immediately if you notice the following: blurred vision, unsteadiness, ringing in the ears, skin rash, or itching. This medication may cause serious liver problems. Life-threatening liver failure has been reported in some patients taking this medication. Liver function tests may be required. Contact your doctor if you notice abdominal pain, vomiting, yellowing of eyes or skin, dark urine, or are feeling weak.

If you choose to stop taking nefazodone, you are encouraged to tell your doctor and slowly taper this medication to prevent withdrawal symptoms.

This medication should be stored out of reach of children and pets and away from light, heat, and moisture.

Relevance to Childhood Development

Nefazodone is not FDA approved for use in children.

A medication guide must accompany this medication containing information related to the increased risk of suicidal thinking and behavior in children, adolescents, and young adults compared to those not taking the medication. Doctors will monitor patients closely for worsening of symptoms, change in behavior, and thoughts of suicide. Patients are strongly encouraged to notify their health care provider to report sudden changes in mood, behavior, thoughts, or feelings.

Women should let their doctor know if they are pregnant or planning to become pregnant. It is not recommended to breastfeed while taking this medication.

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Negative Academic Self-Evaluation

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Synonyms

Maladaptive self-reflection; Negative self-evaluation standards

Definition

Negative academic self-evaluation is a type of self-reflection process in which students' evaluative judgments about task performance are inaccurate or maladaptive and or promote dysfunctional regulatory or motivation reactions.

Conceptual Framework

Most theories of self-regulation involve a self-evaluative component whereby individuals examine their performance outcomes and or progress towards personal goals [1]. From a social-cognitive perspective, self-evaluation does not occur in isolation but rather within a broader framework of forethought and reflective decision-making. For example, Zimmerman developed a cyclical model of self-regulation whereby regulated thought and action proceeds sequentially across three phases: forethought (i.e., processes that precede efforts to learn or perform; goal setting and strategic planning), performance control (i.e., processes occurring during learning efforts; self-monitoring and self-control), and self-reflection (i.e., processes occurring after learning or performance; self-judgments and self-reactions) [13]. Each of these regulatory phases has been shown to exert independent effects on students' academic achievement and behavior. However, the processes within these phases are interdependent, suggesting that as one process breaks down or becomes maladaptive there is a strong likelihood that others will be adversely affected.

Academic self-evaluation involves a process whereby students compare their current performance on an academic task (e.g., test performance) to some standard or

benchmark [13]. From a self-regulation perspective, engaging in this process is essential because it defines whether a performance was successful or not and thus initiates a more complex set of reflection processes, such as identifying the causes of one's successes or failures as well as the necessary strategic adjustments to improve future performance. It is quite common for most students to encounter situations throughout their academic careers when they determine that they are performing below expectations. Although these experiences are "negative" from a performance standpoint, they do not necessarily imply that students' engagement in self-evaluation is faulty or maladaptive. In other words, there is an important difference between negative performance information generated by the self-evaluation process and the use of negative or ineffective forms of self-evaluation. A primary focus of this paper will be to review the negative forms of self-evaluation and their primary determinants.

Self-evaluation represents the initial component of the self-reflection process. However, it is students' interpretations of and reactions to their perceived performances, and in particular failure, that cultivates adaptive or dysfunctional academic behavior. When students struggle in school, it is important for them to sustain a belief that they can control their learning and performance outcomes. Researchers often point to different motivation and regulatory processes that mediate the relationship between self-evaluation and evaluative reactions, with social-cognitive researchers citing self-efficacy as one of the key variables [7]. In short, when students begin to doubt their capabilities to perform specific tasks or feel incapable of managing the demands of school, they will often disengage from learning and will show decreased levels of interest and persistence. Another factor that links self-evaluation to maladaptive behavioral reactions following failure is causal attributions; the reasons students perceive as the causes of their performances outcomes [12]. For example, if a student fails two consecutive writing assignments in English class, typical attributions include low effort when writing, teacher difficulty, or even poor writing skills. Research has shown that when students are prompted to make attributions to factors that are controllable, such as strategy use and effort, they will exhibit more adaptive motivation beliefs and will have a greater likelihood of adjusting or modifying their learning methods in order to improve future performances; a process called adaptive inferences [2]. However, if students believe that the causes of their failure experiences are outside of their control, then they will have minimal incentive to put forth the necessary effort to improve or adjust how they are learning.

Along a similar vein, Dweck and colleagues present a model of achievement motivation that emphasizes how students' conception of intelligence or ability impact the goals that they select for academic tasks and their reactions to failure and success [4]. From this perspective, students can conceptualize intelligence from an entity or incremental theory perspective. Students who possess an entity perspective of ability view intelligence to be stable in nature and thus perceive mistakes and errors as indicators of poor abilities and competencies. These individuals tend to exhibit a more helpless-oriented response style to failure as they pursue low- difficulty tasks and will withdraw as academic activities become more challenging and intense. Conversely, students who possess an incremental conception of ability perceive intelligence to be a malleable construct that can change through effort and learning. These students tend to be more mastery-oriented as they embrace challenges and view failures as opportunities to grow and improve.

In short, the impact of students' self-evaluations on their motivational and regulatory reactions will often depend on various cognitive beliefs, such as self-efficacy, attributions, and conceptions of intelligence. Of primary concern in this paper, however, are situations when the actual self-evaluation process breaks down and or produces inaccurate or misleading information about one's abilities and skills. When students misinterpret their successes or failures the entire reflective process will invariably be affected.

Determinants of Negative Self-Evaluation

Most students will encounter situations in school when they perform in a negative manner; that is, they do not achieve up their potential or expectations. These situations are not ideal but they do represent important opportunities for students to both reflect on the adequacy of their learning methods and to modify these strategies to improve their achievement. However, one can only learn from self-evaluations when the information that is generated is accurate and valid. Unfortunately, there are a variety of factors that inhibit healthy self-evaluation and or distort the information that individuals self-generate during this evaluative process.

Proactive versus reactive evaluators. The extent to which students proactively set performance standards and monitor their progress towards these standards will greatly influence the nature of their self-evaluative skill. Social-cognitive researchers have differentiated between two types of regulators, proactive and reactive [14]. Proactive regulators naturally engage in forethought processes (e.g., goal-setting, strategic planning) *prior* to a learning

activity and continually monitor their behaviors and outcomes *during* learning. In contrast, reactive learners are much less aware of their personal objectives and their progress towards these ill-defined standards of performance. Teaching students to become more mindful of their objectives and learning behaviors promotes accurate self-evaluation because it establishes clear, identifiable benchmarks through which students can compare their performance outcomes. When students do not establish these criteria in an a priori fashion the process of self-evaluation becomes more variable and reliant on social comparisons. For example, suppose Deangelo, who is a seventh grade student at a middle school, has shown much difficulty passing his math tests for the past few months. He rarely thinks about his standards of performance, aside perhaps from general thoughts such as, "I need to do better." In addition, he is largely unaware of how he should prepare for math tests and thus tends to exhibit an inconsistent array of studying behaviors. Whenever Deangelo receives a test grade back from this teacher he either immediately shoves the test in his math binder or thinks about how incompetent he is compared to his classmates. This scenario illustrates a common theme with reactive regulators; that is, they either avoid engaging in the self-reflection processes needed to improve their skills or lack the structure or foundation from which to adaptively evaluate their math skills and performance.

In addition to developing performance standards in a forethoughtful manner, proactive learners will also frequently engage in *self-observation* during the learning process. In short, this process involves monitoring aspects of one's performance and the conditions that encapsulate it; self-recording is one common example of an overt observation technique [13]. Self-observation or recording is linked to self-evaluation because it provides a learner with detailed performance and process information that is needed to assess one's performance attainments. Research has shown that when elementary school children set performance goals and are taught to self-evaluate their capabilities over repeated sessions, a form of self-monitoring, students exhibited higher math skill and self-efficacy than those who did not engage in repeated self-evaluation [8].

Dimensions of self-evaluative standards. Simply becoming more mindful and proactive in one's approach to learning does not ensure that adaptive self-evaluation will unfold. One must also closely examine the nature of the standards that one uses in the evaluation process. There are several dimensions of performance standards that can adversely impact the accuracy and regulatory consequences of students' evaluative judgments, including: (a) type of evaluative criteria, (b) level of difficulty, (c) level of specificity, and (d) focus.

The performance standards that students select can involve one of several *types of evaluative criteria*, such as mastery, self or prior performance, and normative [13]. Mastery criteria consist of benchmarks that represent a wide range of skills or competencies, typically from a basic to a more advanced level. In contrast, the use of self or prior performance criteria involves using prior academic grades or attainments as the benchmarks to evaluate success or progress. Both of these types of criteria typically facilitate adaptive motivation and self-regulation because they direct students' attention towards personal progress and behaviors and or the essential features of relevant academic tasks. For these reasons, most applied self-regulation training programs emphasize one or both of these types of performance markers [5, 6].

In contrast, normative or social comparisons will often lead to maladaptive self-evaluations and reactions, particularly for children who struggle in school. A key limitation of this type of criteria is that it shifts students' evaluative judgments to factors that are typically not under their control, such as poor ability and peer performance. Social comparisons are also problematic because they can mask or obscure subtle signs of progress that students are making on an academic task. Consider an example of a fifth-grade student, Tony, who has gradually increased his science test scores by 12 points (i.e., from a 72 to an 84) over a two-month period. Despite showing some improvement, if Tony's science grades continued to fall consistently below that of his classmates and if he consistently relied on normative comparisons to evaluate his competencies, it is highly likely that he will not recognize this test grade improvement as progress.

Inaccurate or misleading evaluative information can also result when the *level of standards* that students use are excessively stringent. A rigid application of harsh standards can often be a reflection of metacognitive deficits, personality traits, or the presence of mood disorders. For example, research has shown that children who possess metacognitive deficits, such as those with learning disabilities, are often unaware of the skills and behaviors needed to successfully accomplish various academic tasks [11]. Furthermore, students with learning disabilities typically do not establish clear personal goals or standards of performance and when prompted to estimate task performance they often develop unrealistically high expectations. The development of extremely high standards of performance can also result from personality

characteristics, such as perfectionism. Although there are adaptive forms of perfectionism, researchers have identified *maladaptive perfectionists* as those who rigidly adhere to lofty expectations regardless of contextual demands and who exhibit harsh self-criticism and self-doubt regardless of their performance attainments [10]. Still further, individuals with mood disorders, such as depression, are often hypercritical of their performances and tend to underestimate the significance of their accomplishments. Although there is conflicting data about the precise nature of the relationship between depression and self-evaluation, there is evidence that depressed mood directly predicts changes in students' self-evaluation over time [3].

Regardless of the source or reasons for excessively harsh or unrealistic performance standards, students possessing these lofty benchmarks are particularly vulnerable to encounter repeated experiences of failure and to become enmeshed in a negative cycle of hopelessness, doubt, and feelings of inferiority. Moderately challenging standards of performance tend to produce adaptive self-reflection and evaluation because they promote demonstrations of mastery success and progress [14]. Suppose Deangelo, the seventh-grade student who was struggling on math tests, received grades of 62%, 71%, 55%, and 69% on his last four math tests. In an attempt to help Deangelo become more engaged in learning and to evaluate his math performance more effectively, his math teacher encouraged him to set goals for his math tests. Deangelo decided to establish a very difficult and challenging goal of 90%. Even if he showed some improvement on his next two tests (e.g., scores of 75% and 77%) there is a high likelihood that his excessively high performance standard would obscure this modest growth. Although many factors influence how a person ultimately reacts to failure, in this situation Deangelo would be susceptible to exhibit feelings of dissatisfaction, anxiety, and low self-efficacy because he did not come close to reaching his goal. However, if Deangelo elected to use a more modest yet challenging standard of 80% (i.e., 9 points higher than his previous high test score), there is a greater likelihood that he would have judged his test score of 75% and 77% in a more favorable manner. Over time, once Deangelo was able to attain or reach his standard of 80%, he should then be encouraged to make more stringent and challenging goals for future tests. The primary point here is that when the standards that individuals set for themselves are excessively high, they are less likely to see minor improvements or shifts in their performance. Interestingly, many researchers have shown that applied self-regulation interventions are often effective in helping students adopt more realistic performance standards in school and to more adaptively reflect on and evaluate their performance attainments [5, 6].

A third dimension of self-standards that can make evaluative interpretations vague and ambiguous is the *specificity* of the standard. A large body or research has shown that "do your best" or general types of standards are problematic because they make it more difficult for students to clearly recognize when progress or improvement is being made [9]. In order for the process of self-evaluation to facilitate or prompt the self-regulation feedback loop, standards must be clear and explicit. When vague or general standards are used as benchmarks to evaluate performance, students will often find it difficult to engage in subsequent reflective and forethought processes and will typically rely on social comparisons to evaluate performance.

Finally, the *focus* of performance standards has direct implications on the things that students attend to and evaluate following a performance outcome [8, 9]. In the social-cognitive literature a distinction is often made between process (learning) and product (performance) goals or standards. Process goals tend to focus on the tactics or strategies needed to perform or learn a task whereas product goals typically pertain to the outcomes of performance. Research with elementary school children across various academic domains has shown that when students are taught and prompted to focus on the process of learning rather than merely outcomes, they will often attain higher achievement and will display more adaptive motivation beliefs. Although researchers have questioned whether process goals are superior to performance or outcome goals in all situations and developmental contexts, it is widely accepted that process goals promote more adaptive self-regulation and self-directedness for children or for those who are first learning how to perform an academic task or skill [14].

Conclusion

In sum, most students will experience some type of failure or lower than expected performance during their primary or secondary school years. These "failure" experiences can serve as valuable opportunities for youth to evaluate and reflect on their approaches to learning and to hopefully develop more strategic and effective ways to perform at a higher level. However, at times, the self-evaluation information that students generate may be inaccurate or prompt them to make maladaptive regulatory and motivation reactions. In order to promote healthy forms of self-evaluation, students should be encouraged to not only become more aware of the

standards they hope to attain but to also rely on standards that are clear and realistic and direct their attention on their own behaviors, skills, and performance rather than on external factors or events.

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Negative Life Events

►Life Events

Negative Reinforcement

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Synonyms

Parent behavior; Timeouts

Definition

Negative reinforcement is a behavioral process by which a response produces the cessation or reduction of an aversive stimulus, or postpones (either temporarily or permanently) the delivery of an aversive stimulus thereby increasing the probability of any future occurrence of the response [1]. For instance, in the mornings when the alarm sounds, one may hit the snooze button to temporarily terminate the buzzer. Over 6 months time, the number of times one hits the snooze button may increase from once a morning to five times before they get out of bed. There are two common forms of responding maintained via negative reinforcement: escape and avoidance. An escape response terminates the aversive stimulus [3]. For example, a child engages in off-task behavior (e.g., talking to a neighbor, jumping out of their seat) during math time which results in their being sent to the principal's office. This child has escaped an aversive stimulus (i.e., math). In the future, the child will be more likely to engage in off-task behavior during math. An avoidance response results in the prevention of delivery of the aversive stimulus. For example, a child may unload the dishwasher after a parent's initial request to avoid being repeatedly asked or reprimanded. Reinforcement, regardless of it being positive or negative, functions to increase the probability of a response be it a desirable or undesirable behavior [4]. However, there are some side effects to the use of negative reinforcement [2]. Since negative reinforcement procedures rely on the cessation or reduction of aversive stimuli or situations, an individual may avoid the situations altogether or one may develop other maladaptive behaviors (e.g., aggression) to escape or counter the controlling contingencies.

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Negative Reinforcer

►Aversive Stimulus

Negative Self-Evaluation Standards

►Negative Academic Self-Evaluation

Neglect

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Synonyms

Child maltreatment; Child neglect; Neglected children

Definition

Neglect is a type of maltreatment which occurs when a child's basic needs are not met.

Description

Neglect may include failure to provide educational, emotional, and/or physical necessities [1]. Educational neglect may include failure to enroll a child in school or ignoring special educational needs. Emotional neglect may include failure to provide adequate psychological support, failure to provide affection, failure to remove a child from situations of domestic violence, and/or failure to provide mental health care. Physical neglect consists of failure to provide shelter, abandonment, malnutrition, inadequate supervision, and/or failure to provide medical attention. Consideration must be made to a child's culture and socioeconomic status regarding failure to provide education, emotional, medical, or physical needs [1, 2]. Neglect may also occur in the presence of other forms of maltreatment such as emotional, psychological, physical, or sexual abuse.

In the United States [2], childhood neglect accounts for over half of all the documented cases of child maltreatment. Young children are more likely to be neglected than older children and adolescents. Neglect may be more common in single parent homes and in families who are poverty stricken. Mothers [2] overwhelmingly commit child neglect compared to fathers, perhaps due to their primary caregiver status.

Neglect may be chronic or acute and can have a multidimensional impact on a child's development. Young children who are neglected may show somatic symptoms such as headaches, bed-wetting, stomachaches, and ►enuresis. Gender may influence how older children exhibit symptoms of neglect, such as boys tending to be more aggressive and girls tending to exhibit signs of passivity and low self-esteem [2]. In general children may show physical symptoms such as failure-to-thrive, sleep disturbances, stomachaches, bed-wetting, ulcers, regression in developmental milestones, and stunted physical development due to poor nutrition. In addition to being aggressive or passive, children may also be hyperactive and show signs of incompetence. Neglected children may also show extreme dependence on teachers, lack of enthusiasm, change in academic performance, ►parentification of siblings, and/or learning difficulties. Cognitively, children may have delays in functioning, low self-esteem, and/or exhibit academic difficulties [1, 2]. If neglect is present at certain critical periods of cognitive development, a lack of sensory stimulation may adversely influence brain development [3]. Specifically, neglect may lead to the underdevelopment of the cortex in the brain as well as limbic system dysfunction [4].

Additionally, maltreated children may have insecure attachments to their caregivers and have problems with emotion regulation, which may lead to alterations in the ►hypothalamic-pituitary-adrenal axis, which affects stress regulation. Poor emotion regulation may influence children to show aggressive or withdrawal patterns with their peers. Without proper intervention and treatment, children who are maltreated may be affected well into adulthood. As adolescents and adults, they may abuse substances, show symptoms of psychiatric disorders, and engage in criminal behavior [2].

Treatment for children who have been neglected is often focused on their primary caregivers. Such treatment may include training in hygiene, finance, and family competence, counseling, and referrals to resources that may help the family. In addition, treatment may include child rearing classes and stress management training. Cognitive-behavioral treatment is most commonly used to teach caregivers self-management skills and modify problematic behaviors [2].

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Neglected Children

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Synonyms

Child maltreatment; Child neglect; Neglect

Definition

Neglected children typically have caregivers who fail to provide for their basic needs.

Description

Neglected children are those whose basic needs are not met by caregivers. Maltreatment of children may take the form of educational, emotional, and/or physical neglect [1]. Caregivers may fail to meet education needs such as schooling or special education. Caregivers may be neglectful of a child's emotional needs, such as failing to provide adequate psychological support or affection and/or failing to remove a child from an abusive situation. Caregivers also may physically neglect their children including failing to provide shelter, abandoning them, causing malnutrition, or providing inadequate supervision [1, 2]. Consideration must be made for a child's culture and socioeconomic status in regard to providing educational, emotional, medical, or physical necessities. Neglect may also occur in the presence of other forms of maltreatment such as emotional, psychological, physical, or sexual abuse.

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Neglected Children

►Child Neglect
►Neglect

Neglectful Parenting Style

►Indifferent Parenting Style

Neglecting Parents

►Uninvolved Parents

Neo-Behaviorism

►Learning

Neo-Cortex

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Synonyms

Cerebral cortex; Cortex

Definition

The neo-cortex is divided into two hemispheres in the human brain. The brain is further subdivided into regions of specialization called lobes. These lobes represent specific areas where particular types of neurons have come together in order to fulfill specific functions such as language production or visual processing. The lobes are the frontal lobes, the temporal lobes, the parietal lobes and the occipital lobes. It is made up of six layers composed of neuron bodies, commonly referred to as grey matter. These six layers measure approximately 2–4 mm. The neo-cortex appears wrinkled with bulges, called gyrus (plural gyri) and the folds in between, known as sulci (plural sulcus). The neo-cortex is thought to be that portion of the brain which is responsible for most of the "higher" functions such as spatial reasoning, motor control, conscious thought, sensory perception and language. It represents about 76% of the volume of the human brain.

Description

The neo-cortex is the outer 2–4 mm of tissue surrounding the brain, an organ within the central nervous system (CNS). The tissue is made up of the body of neurons, which when viewed in the dissected brain appear to be grey. This has resulted in the neo-cortex being referred to as grey matter, as opposed to the myelin covered dendrites extending from the neuron's cell body, which appears white and is thus called the white matter of the brain.

The cortex is divides into two hemispheres, the right and the left. The right hemisphere is more involved in spatial processing, emotional regulation, abstract reasoning as well as motor movement on the left side of the body. The left hemisphere is responsible for logic, language, linear thought and factual memory as well as the motor movements on the right side of the body. The two hemispheres are primarily connected by the corpus callosum, a large tract of myelinated axons known as commissural fibers. The cortex is further divided into four lobes: the occipital, the parietal, the temporal and the frontal. While all of the functions of the cortex consist of a collaboration of the whole of the brain, each lobe serves some specialized functions. The occipital lobe is also known as the visual cortex and is the primary starting place for the processing of visual information and relaying it to the other areas of the brain for appropriate use and function. It is located at the back of the head. The parietal lobe sits atop the occipital lobe and a little forward. It is primarily responsible for processing sensory information. It is also known as the sensory motor strip. The parietal lobe takes the sensory information provided by all of the elements of the CNS and organizes and relays the information so as to organize appropriate action and preparation for movement. The frontal lobes extend forward from the parietal lobes to the forehead. The frontal lobes include the motor strip, responsible for organizes and initiating physical movement; the region between the motor strip and the prefrontal cortex which is largely responsible for regulating emotion and reason, fine motor skills and a portion of executive control function. The prefrontal cortex extends from the top of the forehead to the area above and behind the eyes. It is the primary executive control center for the whole brain. It facilitates the regulation of memory, behavior, many of our social skills and as a primary regulator of the overall organism. The temporal lobes are found on the side of the head extending from the posterior of the orbital prefrontal cortex back to the parietal and occipital lobes and below the

central motor strip and the sensory cortex. The temporal lobes manage much of the emotional processing, language, memory, hearing and general stability of the organism.

The cortex functions by a combination of electrical and chemical processes taking place in the specialized brain cells known as neurons. Neurons are comprised of a cell body, an axon hillock, axons, dendritic branches and terminal boutons. The balance of electrical charges in chemical ions found inside and outside of the cell body of the neuron at the axon hillock determines if an electrical signal will be generated within the neuron. When the chemical balance between the inside and outside of the neuron shifts as a result of the opening of channels in the cell membrane and electrical charge is created. When this charge is strong enough it is sent down the axon to the terminal bouton(s). Here are found vesicles containing neurotransmitters. The electrical charge causes the vesicles to release the required neurotransmitters into a space between the terminal bouton and the receptor on the adjoining neuron known as the synaptic cleft. If the neurotransmitter is taken up by the receiving neuron another electrical charge is generated in the receiving neuron which then proceeds out to other neurons, thus propagating the action potential and completing the various connections to fulfill the action, behavior, or task that was intended. An axon can have many branches and may synapse (connect) with up to 1,000 other neurons. At birth, children are born with over 200 billion neurons. As the infant ages and develops a process known a neural pruning takes place. The developing brain begins a process of forming, organizing and strengthening circuits in the brain for specific functions. As the circuit becomes fully formed, excess neurons are left unattended and eventually die. This process of circuit formation appears to result from a combination of genetic and environmental influences. By the age of approximately 25 the brain has completed its primary formational tasks and has about 100 billion neurons organized into intricate networks providing trillions of connections available every second of life.

Relevance to Childhood Development

The formation and refinement of the connections of the neo-cortex is a slow gradual process taking years to be fully accomplished. Negative influences, physical or emotional, can slow, interrupt, distort or prevent development at any stage of development including prenatal. For example, preventing exposure to language in the first three years of life will likely make the acquisition of language at a later date nearly impossible.

The gradual development of the neo-cortex means the children will develop gradually and slowly and thus will require appropriate assistance and formation at the different stages. Parents especially need to be aware of the stages of development in order to provide appropriate stimulation, environmental resources and emotional support and structure. Knowledge of the levels and stages of cortical development also allows care providers and educators to have realistic goals for performance and skill development.

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Neonatal Behavioral Assessment Scale (NBAS)

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Synonyms

Brazelton NBAS; Brazelton scale

Definition

The Neonatal Behavioral Assessment Scale (NBAS) is an instrument designed to assess the neurological and behavioral functioning of newborn and very young infant. It assesses the infants' ability to tune out stimuli, to respond to visual and auditory stimuli, soothability, motor functioning and reflexes.

Description

In 1973, T. Berry Brazelton and his colleagues published the NBAS as a guide to help parents, health care providers and researchers understand the behavioral communication of infants from birth to tow months of age. The scale has 28 behavioral and 18 reflex items; these items do not yield a score, but instead describe multiple developmental areas and describe how the baby integrates these areas in reaction to environmental stimuli. According to Brazelton, newborns are faced with a hierarchy of four essential developmental tasks all of which are surveyed by his scale. The tasks are the regulation of their autonomic

systems, control of their motor systems, regulation of their states of consciousness and their ability to interact socially.

The autonomic nervous system regulates breathing, temperature, and other body functions; vulnerable, high-risk infants spend most of their energy trying to stabilize their autonomic system. Environmental stimuli may disrupt their breathing, and cause them to tremor or startle.

In striving to control their motor system, infants must inhibit random movements and control activity level in order to focus on other developmental tasks. The NBAS assesses the quality of muscle tone, activity level and reflexes.

The next sphere of development is regulation of state or level of consciousness. Infant states range from quiet sleeping to vigorous crying; however, the ability to maintain a quiet, alert state is key to the processing of and responding to environmental stimuli such as voices and faces. To assess state, the scale measures the baby's ability to habituate to repeated stimuli such as light and sounds, the number of transitions from one state to another during testing and the state that predominates during testing.

When regulation and control are possible in the autonomic, motor and state systems, the infant is ready to interact socially. The scale examines the infant's capacity to turn to voices and other sounds, to discriminate between sounds and to follow faces and objects visually and the infant's cuddliness and consolability. Brazelton concludes that newborns are ready to control their behavior in order to respond to the new environment, they are able to communicate through their behavior and they are social organisms ready to contribute to the dynamic social engagement between them and their caregivers.

The NBAS and its focus on infants' behavioral capacities has stimulated the creation of other tests. The most recent is the Neonatal Intensive Care Unit Network Neurobehavioral Scale (NNNS) with its more rigorous analysis of neurological, stress and regulatory behaviors has a more standardized format and wider application. The Assessment of Preterm Infant Behavior (APIB) developed with Heidi Als, Ph.D., Barry Lester, and Ed Tronick evaluates the neurobehavioral organization of premature infants. The Clinical Neonatal Behavioral Assessment Scale uses the format of the NBAS in order to help practitioners engage with parents through the examination of and demonstration their infant's skills.

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Neonate

▶Prematurity

Neostriatum or Striate Nucleus

▶Striatum

Neoteny

▶Altricial

NEPSY

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Synonyms

NEPSY-II; NEPSY: a developmental neuropsychological assessment

Definition

An assessment instrument used to measure neuropsychological functioning in children and adolescents between the ages of 3 and 16.

Description

The NEPSY is an assessment instrument designed to measure neuropsychological function and dysfunction in preschool and school-age children. Its name represents an abbreviation of the term "neuropsychology." The first version of the NEPSY was released in Finland in the 1980s; the instrument was revised and published for use in the United States in 1998 by authors Marit Korkman, Ursula Kirk, and Sally Kemp [1]. In 2007, the revised edition of the test (NEPSY-II) was published by PsychCorp, a brand of Harcourt Assessment, Inc., for use with 3–16-year-olds (representing an extension of the first edition's target age range of 3–12 years). The full name of the first edition of the test (NEPSY: A Developmental Neuropsychological Assessment) made the purpose of the instrument clear; the current edition of the test is titled simply "NEPSY-II," with no further explanation of the acronym contained in the revised test's name.

The NEPSY-II is based on the Lurian approach to psychological assessment, which emphasizes the interplay among complex cognitive functions. This approach involves isolating subcomponents of cognitive functions through administration of narrowly-focused assessment tasks, both to enable qualitative observation of individual patterns of performance and to determine the specific neuropsychological deficits underlying functional impairments. The instrument permits assessment of functioning in six domain areas: Attention and Executive Functioning; Language; Memory and Learning; Sensorimotor; Social Perception; and Visuospatial Processing. The test's authors state that the instrument can be used for several purposes: "a *general assessment* for an overview of a child's neuropsychological status, a *diagnostic assessment* based on the primary diagnostic concerns or referral questions, a *selective assessment* with the examiner selecting subtests based on clinical needs, and a *full assessment* for a comprehensive neuropsychological evaluation" (Korkman, Kirk, and Kemp, 2007, p. 2). Clinicians can choose to administer subtests representing all six domain areas measured, or can target specific areas more selectively. The test does not yield an overall score representing global neuropsychological functioning; rather, one or more scores (representing facets of performance such as patterns of correct/incorrect responding or similar/dissimilar performance across related tasks, as well as overall performance) are reported for each subtest administered. As with most psychological tests, users of the NEPSY-II are expected to have had graduate-level training in ▶psychometrics as well as in test administration, scoring, and interpretation.

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NEPSY: A Developmental Neuropsychological Assessment

▶NEPSY

NEPSY-II

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Synonyms

NEPSY

Description

The NEPSY-II is a revision of the NEPSY [5] and is a developmentally based neuropsychological assessment

instrument designed to measure neurocognitive functioning of children between the ages of 3 and 16. At the time of this publication, no independent studies have been published. The original NEPSY does however, have some published research which may be pertinent to the NEPSY-II. The name NEPSY is a shortened version of the word "neuropsychology" and was chosen as it was considered to be child friendly. The NEPSY-II is similar to the original NEPSY in its theoretical framework as well as continuing many of the positive features of the original NEPSY, such as ease of administration, portability, and dynamic clinical utility [12]. The NEPSY-II is grounded in the theoretical framework of developmental psychology and neuropsychological theory and practice. The measure was designed with the idea of creating a broad neuropsychological measure based on the theories of Luria [8, 9]. For example, Luria was a proponent of independent evaluation of cognitive functioning for unique deficits; an idea that has been incorporated into the construction of the NEPSY-II. Korkman [4], one of the original NEPSY developers, believed that children were a good fit for this form of testing. For example, deficits in children's cognitive functioning typically are not seen in isolation from other deviant expressions such as behavioral problems or difficulty with academics. Children may display pathognomatic signs different from their adult counterparts; which helps to contribute to a lack of concretely defined neurological disorders in children [3].

A child's age is an important component to administering the NEPSY-II because it contains 32 different subtests; many of them are designed for use with specific age groups of children. For a more complete discussion and recommendations for subtest selection the *NEPSY-II Administration Manual* should be consulted [6, 7].

Psychometric Data

The reliability statistics for the NEPSY-II were calculated using a variety of methods based on properties of the individual subtests. For some of the NEPSY subtests, limited variability of functioning in normal children (e.g., tasks involving simple cognitive processes) yield a small range of scores. Additionally, due to the authors of the NEPSY-II designing their instrument to be as dynamic as possible there is difficulty in obtaining useful reliability scores across the test or age groups because subtest selection is highly dependent on independent examiners. The NEPSY-II has demonstrated stability across the six primary age groupings in retest data. Improvements in performance were seen, over time, primarily on the Memory for Designs, Memory for Faces, and Inhibition subtests but were not uniform for age across test of domains. All protocols during standardization were double scored for evidence of interscorer agreement. Results indicated interscorer agreement was very high and ranged from .98 to .99 on subtests with simple scoring criteria, and ranged from .93 to .99 on subtests containing more complex scoring protocol (e.g., Clocks, Design Copying).

NEPSY-II. Table 1 NEPSY-II Domains of Assessment with Corresponding Subtests

Domain	Subtest
Attention and executive function	Animal sorting
	Auditory attention and response set
	Clocks
	Design fluency
	Inhibition
	Statue
Language	Body part naming and identification
	Comprehension of instructions
	Oromotor sequences
	Phonological processing
	Repetition of nonsense words
	Speed naming
	Word generation
Memory and learning	List memory/delayed
	Memory for designs/delayed
	Memory for faces/delayed
	Narrative memory
	Sentence repetition
	Word list interference
Sensorimotor	Fingertip tapping
	Imitating hand positions
	Manual motor sequences
	Visuomotor precision
Social perception	Affect recognition
	Theory of mind
Visuospatial processing	Arrows
	Block construction
	Design copying
	Geometric puzzles
	Picture puzzles
	Route finding

Note: Table developed from the NEPSY-II clinical and interpretive manual [6, 7]

The NEPSY-II was standardized in combination with a number of other valid measures of children's abilities including the *Wechsler Intelligence Scale for Children-Third Edition* (WISC-III [14]), the *Wechsler Achievement Test – Second Edition* (WAIT-II [11]), the *Delis-Kaplan Executive Function System* (D-KEFS [2]).

Clinical Uses

The NEPSY-II provides the examiner flexibility in test selection which renders it a dynamic assessment tool. Many of the tests have been adopted from traditional neuropsychological tasks, but many of the tasks have been updated and improved with sound standardization and normative samples. The most common methods of assessment using the NEPSY-II are General Neuropsychological Assessment, Diagnostic Assessment, Selective Assessment, and a Full Assessment. The Diagnostic Assessment, which is a hypothesis based testing model, is the most unique feature of the dynamic assessment model and centers on six different diagnosis common to children such as Attention-Deficit/Hyperactivity Disorder (ADHD), Pervasive Developmental Disorders (e.g., Asperger's Disorder, Autistic Disorder), and academic disabilities (e.g., Language, Mathematics, and Reading).

Table 1 lists the domains covered by the NEPSY-II and the Subtests that correspond to those domains.

Interpretation of the NEPSY-II

As with all neuropsychological tests, caution in interpretation should be exercised. This is especially true for examiners who have not had extensive training in neuropsychological assessment. Clinicians familiar with many classic intelligence tests will recognize the format of the protocol cover sheet and the familiar easy to follow instructions contained within the administration manual.

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Nerve Cells

►Dendrite
►Neurons

Nerve Fibre

►Axon

Nervous System

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Synonyms

Autonomic nervous system; Central nervous system (CNS)

Definition

The nervous system is made up of the brain, the spinal cord, nerves and ganglia. The body's response to internal

and external stimuli is controlled by the nervous system. Neurons and glia are the two main types of cells which make up the nervous system. Neurons carry information from one place to another by means of bio-electrical and bio-chemical signals. Glia provide support for the neurons and significantly outnumber neurons.

Description

The general term, nervous system, is divided into two primary subdivisions, the central nervous system and the peripheral nervous system. The central nervous system (CNS) contains the brain and the spinal cord. The peripheral nervous system (PNS) contains all the neural tissue outside of the CNS such as sensory neurons that send and receive information to and from the muscles or those that relay information to or from the spinal cord or the brain. The brain and the spinal cord a extremely fragile structures so they are encased in bony structures. The brain is protected by the skull and the spinal cord by the spinal column. The brain sits in the skull surrounded by cerebrospinal fluid (CSF). This fluid serves as a shock absorber which helps to cushion the brain and protect it from damage when minor bumps occur. The CFS also serves as the medium for nutrition for the brain and the spinal cord. Glia cells form tightly packed boundaries between the brain and the body's blood. This is known as the blood brain barrier and it protects the brain from harm from toxins and infections that may be found in the body. The blood brain barrier also locks out many nutrients that the brain cells require for life. As a result, the CSF is the primary means of transport for the nutrients that the neurons and nerve cells need to function.

This represents the major divisions of the nervous system. The nervous system is further subdivided into 7 subsystems which can be found elsewhere in this encyclopedia. They are (1) the spinal cord, (2) the medulla, (3) the cerebellum, (4) the pons, (5) the midbrain, (6) the hypothalamus and thalamus, and (7) the cerebral cortex.

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Neural Tube Defects

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Synonyms

Neural tube disorders

Definition

Neural tube defects refers to the array of developmental disorders and impairments that originate secondary to incomplete or faulty closure of one of the neuropores (i.e., anterior and posterior openings) of the neural tube which is the foundation of CNS formation.

Description

Neural tube defects are a grouping of birth defects that correspond with improper development of either the brain or spinal cord. Approximately 20–24 days after fertilization takes place, the embryo consists of a "primitive brain" that is merely a clustering of several sheets of cells referred to as the neural plate [3]. As development continues, the neural plate begins to fold in the middle creating a groove. As this folding continues to occur, eventually the two creases meet, leaving a hollow center and presenting in a cylindrical fashion, much like the cardboard tube inside paper towel rolls. This is known as the neural tube, which is the building block of the Central Nervous System, which includes the brain and spinal cord. Prior to the brain and spine developing the neural tube must close off at both the superior (i.e., top) and inferior (i.e., bottom ends). These openings are referred to as the neuropores. For successful growth of the brain and spinal cord to occur, these neuropores must close off completely and in the appropriate time frame. Neural tube defects refer to the spectrum of disorders and presentations that originate from incomplete or altered closure of these neuropores. As such, disorders are broken in to open and closed, meaning those that occur due to a neuropore not closing completely (i.e., open) or closing too soon or inappropriately (i.e., closed). In comparison, the open neural tube defects are far more common than the closed. In addition to this distinction is whether it is the top or bottom neuropore that is the sight of the dysfunctional closure.

Open neural tube defects include anencephaly, encephaloceles, hydranencephaly, iniencephaly, schizencephaly, and spina bifida. Incomplete closure of the superior (i.e., top) neuropore leads to disruption of brain growth and development. This is because the superior portion of the neural tube forms several swellings and outpourings in the head that eventually develop into the brain [1]. The degree to which the superior neuropore fails to close generally corresponds with the degree of brain growth disruption. For example, a complete lack of closure of the superior neuropore may lead to Anencephaly in which no brain develops. These fetuses cannot survive and often times are spontaneously aborted or must be surgically removed. Hydranencephaly, iniencephaly, and schizencephaly are additional open neural tube defects that occur secondary to incomplete closure of the superior (i.e., top) neuropore.

When the inferior (i.e., bottom) neuropore does not close properly or at an appropriate time, abnormalities of spinal cord development occur. Spina bifida constitutes an open neural tube defect in which there is incomplete closure of the inferior (i.e., bottom) neuropore [7]. Again, the degree to which the opening fails to close generally corresponds with the severity of lasting deficits. In regards to Spina bifida there are three variations that generally correspond with the degree of abnormalities in spinal cord development. Spina Bifida Cystica encompasses the two most severe forms, meningocele and myelomeningocele with the latter being the more severe of the two [6]. Spina Bifida Occulta is the least severe form and not only the most common form of Spina Bifida, but the most common form of neural tube defect in general, open or closed [6].

As previously noted, the closed neural tube defects occur when the neuropores close too soon or in an improper way which disrupts continued development of either the brain or spinal cord. For example, Holoprosencephaly occurs when the neural tube closes too early, before two cerebral vesicles, or cavities, are formed. With this defect, fused subcortical structures form, and there is a lack of olfactory structures [4]. Although most babies with Holoprosencephaly are stillborn, those who survive usually suffer from epilepsy and weakness of limbs [4]. Additional closed neural tube defects include lipomyelomeningocele, lipomeningocele, and tethered cord.

When the inferior (i.e., bottom) neuropore does not close properly or at an appropriate time, abnormalities of spinal cord development occur. Spina bifida constitutes a neural tube defect in which there is incomplete closure of the inferior neuropore [7]. Again, the degree to which the opening fails to close generally corresponds with the severity of lasting deficits. In regards to Spina bifida there are three variations that generally correspond with the degree of abnormalities in spinal cord development.

In regards to the etiology of the neural tube defects, they are largely multifactorial ranging from genetic influence, maternal health and metabolism, and environmental factors to name a few proposed factors. While some of these factors are uncontrollable to a certain extent, one area that has been shown to play a key role that can be controlled is maternal diet. The most commonly discussed preventive measure is folic acid supplementation during pregnancy. This recommendation comes from empirical findings that have found the risk of neural tube defects to be reduced approximately 50–70% by mother's using folic acid supplementation [5]. The basis for this positive effect is still not well understood only hypothesized. However, while the positive impact of folic acid supplementation is commonly highlighted, and prenatal vitamins are rich in it, oftentimes prenatal vitamin regimens are not started until 5–7 into the pregnancy cycle, which can be after closure of the neuropores would have taken place. As such, there have been recommendations that all females who are sexually active, and thus have the potential of becoming pregnant, should supplement their diet with folic acid if not prenatal vitamins. This has not been discussed in great detail as food fortification alone in the United States has cut the incidence of neural tube defects by 20% [2]; however, it is one way that some preventive steps may be taken.

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Neural Tube Disorders

►Neural Tube Defects

Neuroanatomy

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Synonyms

Brain structure

Definition

Neuroanatomy is the description of the parts of the nervous system encompassing the brain, spinal cord, peripheral nervous system and nerves. It is often referred to as functional neuroanatomy and links the structures of the nervous system with their function.

Description

Neuroanatomy is the careful description of all of the anatomical structures in the nervous system. This includes all of the major and minor structures in the brain, the spinal cord and the nerves, the sensory and motor nerves as well as neurons and glia.

The major subdivisions of the brain are brainstem, made up of the Mid-brain, the Pons and the Medulla. Proceeding upwards towards the top of the brain, comes the Limbic system. The primary structures of the Limbic system are the parahippocampal gyrus, the hippocampal formation, the amygdale, and the hypothalamus. Within the brain is the Diencephalon which is made up primarily of the Thalamus. The cerebrum is divided into two hemispheres, right and left and four lobes. The lobes are the Occipital, located in the rear of the head; the Parietal, anterior to the occipital and stretching somewhat down the sides of the head; the Temporal, stretching along either side of the head just above the ears and forward to just in front of the ears; and the Frontal, found in front of the parietal about halfway across the front of the head forward to the region of the forehead and behind the eyes. The outermost 2–4 mm of the brain is generally referred to as the neo-cortex and is subdivided into six layers where the cell bodies of the neurons reside. At the back of the head and below the occipital lobe is the cerebellum.

The spinal cord proceeds down the back surrounded by the protective bony spinal column in humans. The spinal cord is divided into four major subdivisions, the cervical, the thoracic, the lumbar and the sacral, working from the brain stem downward.

Neuroanatomy further subdivides all of these divisions and subdivisions into an ever finer and more specific description of both structure and function resulting in hundreds of names. These names are associated with the epoch in which the discovery was made resulting in a mixture of modern and ancient languages, explaining why neuroanatomy is considered to be one of the most difficult and demanding specialties.

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Neurogenesis

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Definition

Neurogenesis literally means the birth or formation of neurons. In children it refers to the process of the initial formation and localization of neurons as the brain itself is formed in the uterus. In adults it refers to the possibility of the formation of new neurons from stem cells within the already mature brain to both augment and enhance brain function or to replace damaged or dean neurons to restore lost function.

Description

At approximately the fourth week of gestation the human embryo has developed a neural tube which will eventually become the central nervous system. One end begins to form a bulb with a hole in the center which will become the brain surrounding the ventricular system. At about six weeks the nerve cells nearest the inside of the tube will begin to divide and increase in number and move outward. Neurogenesis is the process of more and more neurons being formed and moving outward to form the six layers of the cortex (the grey matter) and from there the

extension of axons to form the larger and denser white matter eventually resulting in a fully formed brain. Glial cells, which will provide the myelin sheath for faster communication between some neurons, will not become active until after birth.

Until recently, neuroscientists believed that humans were born with all of the neurons that they would ever have. Neurons died and unlike all of the other cells in the human body, they could not regenerate. However, recent studies have called this believe into question [2, 4]. It is now thought that stem cells residing in the adult brain may be able to differentiate into new neurons and, if they are able to make meaningful connections with other neurons, a limited number will become fully functional neurons. It is possible that this is the mechanism that makes antidepressant medications effective [5].

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Neuroimaging

►Brain Imaging

Neuroleptics

►Depressants
►Thorazine®

Neurological

►Brain Abnormalities

Neurological Disorders

►Brain Disorders

Neuromodulators

►Neurotransmitters

Neurons

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Synonyms

Brain cells; Dendrite; Nerve cells

Definition

Neurons are cells which reside only in the brain. They are specialized cells used for the transmission of information from one part of the body to another and one part of the brain to another.

Description

While neurons can have a variety of sizes and shapes they are all similar in structure. All neurons have a cell body which contains the nucleus and organelles and which serves as the metabolic engine of the neuron. Attached to the cell body is a single axon arising out of the axon hillock. The axon carries messages out and away from the neuron. Each axon ends in a terminal bouton which has vesicles containing a variety of chemicals called neurotransmitters. An individual axon can end in thousands of terminal boutons, effectively significantly multiplying its ability to communicate with many more neurons. Incoming messages are relayed to the neuron by the dendrites. Neurons do not touch one another. Each neuron ends with a small space between itself and the next neuron. This space is called the synaptic cleft. The synaptic cleft may be the space between two terminal boutons or it may occur anywhere along the dendrite.

Neurons communicate with one another through a complex process of electrical and chemical activity. Changes in the number of differently charged ions on

the inside and the outside of the cell body causes a shift in polarity which becomes an electrical charge which is sent down the axon to the terminal bouton. Upon reaching the bouton, if the signal is strong enough, vesicles on the end of the axon release chemicals, called neurotransmitters, into the synaptic cleft. A process known as the synapse. If the neurotransmitter(s) are received by the next bouton the electrical signal is propagated in the next neuron and the signal continues until it reaches its intended destination. The longer axons are covered in Myelin. Myelin is a fatty substance which encircles the axon. Myelinated axons are able to transmit messages 50 to 100 times faster than non-myelinated axons. This combined bio-electrical/bio-chemical process is completed trillions of times a second and it is exclusively through this process that neurons fulfill all of the tasks required for life.

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Neuropsychological Assessment

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Synonyms

Halstead-Reitan Neuropsychological Test Battery; Neuropsychological evaluation

Definition

Neuropsychological assessment is a procedure used to evaluate the behavioral and functional expression of brain dysfunction and identify the impact of ►brain injury or disease on the cognitive, sensorimotor, emotional, and general adaptive capacities of an individual. The primary goal of neuropsychological assessment is to provide information about an individual's functioning that will be useful in his or her environment [1, 2].

Description

Neuropsychological assessment focuses on biogenetic causes of cognitive, behavioral, learning, and emotional challenges through an examination of functional brain-behavior systems [1]. Neuropsychological assessment provides quantitative and qualitative data to describe these abilities in terms of the presence and severity of neurocognitive impairments and emotional-behavioral difficulties. Some of the neurocognitive domains that are generally assessed include cognitive processing, ►memory, learning, visualspatial ability, adaptive skills, attention and concentration, sensory-motor skills, and ►executive functions. In addition to standardized and ►norm-referenced tests, neuropsychological assessment also employs clinical interviews, behavioral observation, and information from other people who are involved with the patient to capture qualitative features specific to the patient's abilities to interact with the environment.

The goals of neuropsychological assessment are to diagnose disorders of the ►central nervous system; to provide consultation on the etiology, rate of progression, and prognosis of known or suspected cerebral pathology; and to offer recommendations, interventions, or referrals for the patient's treatment. Situations that may prompt a neuropsychological examination include differential diagnosis, patient care and planning, identifying treatment needs, evaluating treatment efficacy, research, and answering forensic questions [3].

Hebben and Milberg [4] outlined the uses of neuropsychological assessment:

- Describing and identifying changes in psychological functioning;
- Determining the biological correlates of test results;
- Determining whether changes are associated with neurological illness, psychiatric conditions, developmental disorders, or nonneurological conditions;
- Assessing changes over time and developing a prognosis;
- Offering guidelines for rehabilitation and vocational and/or educational planning;
- Providing guidelines and education to family and caregivers; and
- Planning for discharge and treatment implementation.

Minimum expectations of the neuropsychological tests are sensitivity to the presence of brain damage and the ability to distinguish correctly between the presence of brain damage and healthy brain functioning [4].

The amount of time required for a neuropsychological assessment varies greatly depending upon the patient's functioning and the referral question. After the assessment

process is complete, a neuropsychological report is generated to answer the referral question that consists of the reason for referral, the patient's relevant history and background information, the tests administered and their results, observations and conclusions, a diagnosis, and recommendations/interventions for further treatment. A follow-up interview/feedback session is usually conducted to review and clarify the information contained in the report with the patient and/or caregivers; to provide the patient with an understanding of the problems, and to educate the patient, the family, and the referral source about the condition and how the neuropsychological status relates to their future [3, 5, 6].

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Neuropsychological Evaluation

►Neuropsychological Assessment

Neuropsychology

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Definition

A branch of psychology that studies the relationship between the structure and function of the brain and behavior.

Description

The science of neuropsychology is the branch of psychology that specializes in the study of the relationship between brain function and behavior. That is, neuropsychology is concerned with the evaluation of brain/behavior relationships and it provides a method of studying the brain by examining the behavior of an individual. The examination of brain-behavior relationships can inform a variety of clinical applications that seek to solve human problems. For example, a neuropsychologist may be involved in the planning of training programs to help an individual recover from a brain injury or they may implement strategies to minimize the effects of a brain injury. Neuropsychology is often confused with Neurology. Neurology is a specialist field of medicine that deals with the structural and physiological consequences of brain injury and disease. Neuropsychology deals with the cognitive and behavioral impact of such conditions. Neuropsychology is also known for its multidisciplinary nature because it operates across many areas in psychology and the health sciences.

The examination of brain-behavior relationships involves neuropsychological testing. This testing is a standardized, clinically established procedure designed to assess an individual's level of cognitive functioning. The testing procedure can help identify cognitive strengths and weaknesses' and the testing procedure is used to quantify the severity and scope of cognitive deficits. The quantifiable test data provides a clear picture about the cognitive status of an individual and can often be more useful than neuro-imaging procedures at identifying certain brain injuries. Neuropsychological testing is conducted both for research purposes and for clinical evaluation.

The science of neuropsychology emerged through the work of Paul Broca (1824–1880) and Carl Wernicke (1848–1904). Broca and Wernick identified areas of the brain that were responsible for the production and comprehension of language respectively. Broca described the case of a patient who had suffered a stroke in the left hemisphere of the brain and could only speak the word "Tan," although he could still accurately comprehend language. Broca described this case and others to show that the expression of language was localized in the left frontal lobe. The area of the brain that was injured (the third convolution of the inferior posterior frontal lobe) is now known as Broca's area. Individuals with damage to Broca's area have Broca's aphasia (deficits of speech). Several years later, Wernicke described cases in which patients had lesions of the superior posterior part of the left hemisphere and experienced impairments in the comprehension of language. Much other advancement has since been made in describing neuroanatomical systems that support other mental processes.

Relevance to Childhood Development

Child neuropsychology is concerned with the specific brain-behavior relationships of children. A Child (pediatric) neuropsychologist, for example, might examine how learning and behavior are associated with the development of brain structures and cortical systems. Neuropsychological testing of cognitive abilities such as memory and language skills can provide information about how the brain is developing. Comparing the test scores from one child with other children of similar ages helps develop a profile of the child's strengths and weaknesses. Such a profile can explain why the child might be having difficulties with academic achievement or specific academic achievements. For example, problems with reading may be due to attention difficulties rather than a language disorder. Neuropsychological testing can then inform interventions that capitalize on strengths and negotiate around weaknesses. Testing is also used to track the recovery of children from brain injury and detect the effects of developmental disorders, medical problems and treatment interventions. Child neuropsychologists commonly assess children for Attention-deficit Hyperactivity Disorder (ADHD), dyslexia, difficulties with maths, coordination problems, brain injuries, and developmental disorders. The neuropsychological evaluation is often more detailed than an ability assessment and is it concerned with making assumptions about brain-behavior relationships.

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Neuroscience

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Definition

Neuroscience is the study of all things related to the Central Nervous System and the Peripheral Nervous System. This includes the study of both the structure and the function of the brain, nerves, bio-chemical and electrophysiological processes using empirical and theoretical methods. The Society for Neuroscience was founded in 1969 and serves as an organization made up mainly of researchers and physicians active in the study of the brain and related neurosystems for the advancement of theoretical and practical knowledge of how this extremely complex systems manages its functions and for the discovery of ways to heal the system when it damaged by injury or disease.

Description

Neuroscience is the discipline dedicated to the study of the structure and function of the Central Nervous System (CNS) and the Peripheral Nervous System (PNS). Generally, Neuroscience is affiliated with the biological sciences although; in recent years the discipline has expanded to include cognitive sciences, artificial intelligence researchers, and philosophy of mind specialists as well. Early research in neuroscience was limited to forensic, animal and associational studies. That is to say knowledge was derived either by dissection of deceased persons and examining their brains for variations from "normal"; experimenting with animals; and associating functional changes in individuals before and after an injury to the CNS/PNS. Advances in neuroimaging (e.g., MRI, fMRI, TMS, SPECT and PET etc.) have significantly increased our ability to research neurological function as well as refine our understanding of its structure. As a result of the increasing knowledge about neurological function the fields of psychiatry, mental health counseling, social justice and human development are being encouraged to re-examine many long held convictions and beliefs.

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Neurotransmitters

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Synonyms

Acetylcholine; Chemical transmitters; Neuromodulators; Serotonin; Transmitter substances

Definition

Neurotransmitters are chemicals in the brain that stimulate the transmission of nerve impulses.

Description

In the central nervous system (CNS), neurons communicate with each other by sending chemical messages via neurotransmitters. These messages must travel from an axon, across the synaptic cleft, to the dendrite of an adjacent cell. In precipitating communication between neurons by activating receptors in adjoining neurons, neurotransmitters can be excitatory, inhibitory, or both. Increased excitatory neurotransmission can cause mania or seizures, while increased inhibitory neurotransmission can cause depression, stupor, or coma. Schizophrenia, for example, may be attributed to excess levels of dopamine, while depression may be caused by unusually low levels of serotonin. Most psychoactive drugs act upon neurotransmitters to improve function of the CNS.

Listed alphabetically, some principle neurotransmitters include: Acetylcholine, Adenosine triphosphate, Beta-endorphine, Dopamine, Dynorphin, Enkephalins, Epinephrine, Gamma aminobutyric acid (GABA), Glutamate, Glycine, Nitric Oxide (NO), Norepinephrine (noradrenaline), Serotonin (5-hydroxytryptamine), and Somatostatin.

Relevance to Childhood Development

Children who are affected by attention deficit hyperactivity disorder (ADHD), bipolar disorder, or other disorders in the CNS can often be treated with medication that targets specified neurotransmitters to improve CNS function.

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Nevus

▶Café au Lait Spots

Newborn

▶Infancy

News

▶Media

NICHQ Vanderbilt Assessment Scale-TEACHER Informant

▶Vanderbilt Teacher Assessment Scale

Nidicolous

▶Altricial

Night Terrors

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Synonyms

Parasomnia; Pavor Nocturnis; Sleep terror disorder

Definition

The phenomenon, seen mostly in children, of sudden night time awakening in a state of extreme terror with an inability to be roused from sleep.

Description

Night terrors occur during Stage 3 or 4 slow wave sleep, which differentiates them from nightmares occurring during REM (rapid eye movement) sleep. Behavioral presentation includes screaming, crying, and, typically, descriptions of seeing or hearing frightening things. There are often physiological correlates including sweating, increased breathing, and increased heart rate. Sleepwalking may be evident in some children as well. Episodes may last 10–20 min, during which time the child cannot be awakened [2]. There is characteristically no recollection of the event, although some children may recall the emotion of fear. Night terrors occur up to 18% of children in some studies, usually between the ages of 3–12, and very infrequently in adolescence and adulthood. Fevers, stress and lack of sleep have been postulated as causal, with most episodes resolving spontaneously within a short time [1].

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Nightmares

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Synonyms

Bad dreams; Disturbed dreaming

Definition

Nightmares are vivid and dysphoric dreams that awaken the individual from sleep. Nightmares are defined as dreams with strong negative emotions which awaken the dreamer and are common during childhood. Nightmares are vivid and terrifying episodes in which the dreamer is abruptly awakened from sleep. Nightmares are strong negative emotions which awaken the dreamer and are common during childhood.

Description

A nightmare is a vivid and dysphoric dream that usually involves some imagined danger or threat to a child that awakens the individual from sleep. They may involve disturbing themes, images, or figures such as monsters, ghosts, animals or people. Common themes in nightmares are a loss of control and fear of injury. Typically nightmares occur in the middle of the night or early morning when REM sleep and dreaming are most likely to occur.

Relevance to Childhood Development

Nightmares are a common childhood phenomena. They are most common in preschool aged children 3–5 years old. During this period is the age in which normal fears develop and a child's imagination is very active. It is estimated that as many as 50% of children aged 3–6 years have experienced nightmares that disturb both their sleep and their parents' sleep.

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Nimadorm

►Ambien (Zolpidem)

Nitrest

►Ambien (Zolpidem)

Nitrous Oxide

►Depressants

NLD

►Nonverbal Learning Disability

No Language

►Aphasia

Nocturnal Disorders

►Sleep Disorders

Non-Accidental Trauma

►Shaken Baby Syndrome

Nonbenzodiazepine Sedatives

►Depressants

Non-Communicating Hydrocephalus

►Hydrocephalus

Nonconformist Parenting

►Indifferent Parenting Style

Nondirective Play Therapy

►Play-Group Therapy

Non-Directive Play Therapy

►Play Therapy

Nonfluent Aphasia

►Broca's Aphasia

Non-Fluent Aphasia, Receptive Aphasia

►Childhood Aphasia

Non-Identical Twins

►Dizygotic (DZ) Twins

Non-Normative Life Events

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Synonyms

Atypical and major lifetime events

Definition

The term non-normative life events describe significant, unexpected and unpredictable events, for a particular individual, which do not follow the predictable developmental pattern of life-cycle.

Description

Non-normative life events are those that occur unexpectedly, such as natural disasters, loss of a family member and war. Even in cases that death or illness, in specific ages, are statistically considered normative, they are actually

non-normative. They are still unexpected and undesired events, associated with severe effects [5]. Non-normative events may be comprised of both negative and positive events, such as death of a beloved person or winning in a lottery. However, in both cases, they are unexpected and slightly related to chronological age [6].

Life-span developmentalists assert that individual development is deeply affected by age-graded, history-graded and non-normative factors. Features, such as timing, duration order, spacing and patterns of these events may modify the course of individual development. However, out of the three groups of factors influencing individual development (age-graded, history-graded and non-normative) non-normative events are the most unpredictable and can occur at any point of life span. Some of them may result in both permanent and long-lasting effects or in a temporary deviation from what is considered normative [1].

Even though today there is a debate going on about non-normative events, this is not something new. Non-normative events have occurred across the span of different historical periods, due to historical events, such as the French Revolution, Pre-Industrial Period and the period of Great Depression. These historical events resulted in unexpected life changes to a big number of people, such as diseases, early death and poverty [6].

Relevance to Childhood Development

Because non-normative events are unexpected, those who are affected have no opportunity to prepare themselves for the event. Since this kind of events usually occur only to a few people, they do not receive the appropriate support by others. People often have little experience of dealing with the specific non-normative event, they do not actually know how to respond, and therefore less community support resources are available [4]. Moreover, individuals experiencing non-normative life events are at risk of affecting their interpersonal relationships. This occurs because, when a new stressor evolves into people's life, prior strains are intensified, people feel the pressure of competing demands and they have limited available resources to deal with these excessive demands [5].

In the case of non-normative events, experienced in childhood, there is compelling evidence that they could cause serious long-term implications, especially when adverse life experiences are involved [2]. The childhood exposure to traumatic life events is strongly associated with undesirable patterns of physical and mental health outcomes.

As individuals grow older, the influence of non-normative events increases. Researchers explain that this occurs because, with increasing age, people might face losses over which they have no control and individuals often develop a helpless outlook. At the same time, as each individual has experienced a unique set of experiences, chronological age weakens as a predictor of developmental differences in adulthood [1]. In particular, recurrent traumatic events have been reported to reduce person's coping resources in later life and increase vulnerability to psychological and psychiatric disorders [3].

Intervention

Research evidence reveals that, in comparison to half-century ago, people in industrialized Western Societies are today facing an increasing number of non-normative conversions and events, such as early retirement, divorce and separation. Consequently, successful development often depends on people's ability to adapt to both normative but to non-normative changes, as well, through self-regulatory processes [6].

The exposure to non-normative life events, such as a divorce, requires high levels of social readjustment and efforts and it is positively related to high levels of illness rates. Furthermore, research studies have revealed that people facing unexpected and critical life events are at risk of negative development. For these reasons, researchers underline the importance of self-regulation for managing non-normative life events and changes and they highlight the significance of successful adaptation to unexpected changes in life. External stimuli are not the only factors influencing behavior but individuals' responses represent a different influential source for behavior and development. By the processes of self-regulation, in both normative and non-normative events, basic processes, such as goal selection, pursuit and disengagement are involved. In this way people become able to select appropriate goals that can be attained by effort and at the same time be able to restructure goals in cases in which non-normative events have emerged and goals have become unattainable. Therefore, in order for the adaptation, due to non-normative life changes, to be successfully managed, the development of self-regulatory skills is needed [6].

Within a more general framework of a family therapy perspective, an effective intervention for families that experience non-normative events needs to anticipate a deep understanding of the family processes and all the complexities involved, at different stages of the life cycle.

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Non-Obstructive Hydrocephalus

►Hydrocephalus

Non-Promotion

►Grade Retention
►Retention

Non-Suicidal Self-Injury (NSSI)

►Self-Injurious Behavior

Nonverbal Communication

►Gestures

Non-verbal Intelligence

►Visual-Spatial Intelligence

Nonverbal Learning Disability

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Synonyms

NLD; NVLD; Right hemisphere learning disability

Definition

A subtype of learning disabilities characterized by deficits in visual-spatial organization, nonverbal problem solving, adaptation to novel situations, and psychomotor skills, together with academic difficulties in the areas of arithmetic, written expression and, to a lesser extent, reading comprehension. These deficits tend to coexist with relative strengths in single word reading ability and verbal expressive ability. Children with nonverbal learning disabilities are often described as socially awkward and literal in their interpretation of verbal information, due to difficulties noticing and interpreting nonverbal social cues and other pragmatic aspects of communication. They are also described as physically clumsy and as having difficulty with bodily spatial orientation. Children with NLD often are described as having preoccupations and obsessions with certain subjects which they pursue exhaustively before moving on to another topic at some point. There is significant overlap in symptomatology between NLD and Asperger syndrome, leading to the suggestion that they both lie on a continuum of higher functioning autism disorders.

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Nonverbal Learning Disability (NLD)

►Sotos Syndrome

Noradrenaline

►Norepinephrine

Norepinephrine

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Synonyms
Noradrenaline

Definition
Norepinephrine is a neurotransmitter that is synthesized in the locus ceruleus and lateral tegmental areas of the midbrain and serves to modulate attention and regulate sleep-wake cycles as well as mood [1].

Description
Norepinephrine is a crucial neurotransmitter of the central nervous system (CNS) that has been linked to the regulation of mood, memory, hormones, cerebral blood flow, and motor behavior [4]. The breadth of functional responsibility held by Norepinephrine is directly related to the scope of its projections throughout the CNS. Primarily formed in the locus ceruleus, which is localized to the rostral pons near the fourth ventricle in the brainstem, Norepinephrine projections are found extending to various areas of the cerebral cortex, limbic system, RAS, brainstem, cerebellum, and spinal cord [1, 2]. Additional noradrenergic neurons with similar projections have also been found to originate in lateral tegmental areas of the midbrain [1].

As previously mentioned, Norepinephrine has been linked a number of functions; however, it is s role in mood regulation represents one area of particular interest. Specifically, Norepinephrine has been linked with both depressive and manic symptoms such that decreases in the activity of Norepinephrine neurons have been linked with some symptoms of depression whereas some symptoms of manic behavior may be related to increases in activity of these neurons [3]. In fact, the linked between decreased activity of Norepinephrine neurons and depression is such that some of the newer antidepressant agents (i.e., SNRIs) seek to inhibit the reuptake of Norepinephrine in order to increase the reserve of Norepinephrine within the system at a given time thereby improving mood.

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Norm Rate

►Base Rate

Normal

►Norms

Normal Curve

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Synonyms
Bell curve; Frequency curve; Gaussian distribution; Laplace-Gaussian curve; Natural distribution; Normal distribution; Probability density function

Definition
The normal curve is a theoretical, bell-shaped distribution thought to describe the frequency of occurrence of many natural phenomena, including such varied things as height, blood pressure, reaction time, and scores on cognitive tests. Further, it serves as a mathematical model for describing random events in probability and statistics. http://mathworld.wolfram.com/classroom/classes/ProbabilityandStatistics.html, retrieved on 8/29/08

Characteristics

History

Mathematician Abraham de Moivre published an article on the curve in 1733 as a way to approximate the binomial distribution. This account latter appeared in his book on probability theory, *The Doctrine of Chances* (1738). Another Frenchman, Pierre-Simon Laplace, made use of the curve in describing the distribution of random errors (1783), and continued his work in *Analytical Theory of Probabilities* (1812). In analyzing astronomical data, Karl Friedrich Gauss further described the mathematical properties of the curve in 1809. Later, Karl Pearson termed it the "normal curve." (The synonym, the "bell curve," is not to be confused with the controversial book, *The Bell Curve*, published by Hernstein and Murray [3]. This book dealt with the relationship between intelligence and class structure in the United States.)

The Formula

The normal curve is a family of curves defined by the formula:

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$$

This formula consists of real numbers (i.e., 2, pi, and e), parameters (the desired mean, μ, and standard deviation, σ, for the distribution), and the variable x. Symbols π (3.1415...) and e (2.718...) represent irrational numbers, with the exponents of base e being referred to as *natural* or *Napierian logarithms*. The fact that the mean and standard deviation can be of ones choosing is why this formula produces a family of curves (e.g., by design, T-scores have a mean of 50 and standard deviation of 10, whereas current Wechsler and Stanford-Binet IQ scores have a mean of 100 and standard deviation of 15). Substituting a value for x yields a value for the height of the curve on the y-axis, or $f(x)$.

All members of this family of normal curves have a number of common characteristics. First, they exhibit bilateral symmetry. That is, they are symmetrical about a line drawn through the mean, perpendicular to the x-axis. Second, the tails of the distribution are asymptotic, meaning that as they extend out to the left and right, they never quite touch the x-axis. Third, there are two points of inflection at which the curve changes from convex to concave, or vice versa. These inflection points are located at ±1 standard deviation units out on either side of the mean. Fourth, the total area under the curve is 1.0 (or 100%). Finally, for a given value on the x-axis (expressed in terms of standard deviation units above or below the mean), the cumulative area under the curve to that point stays the same.

The Standard Normal Curve

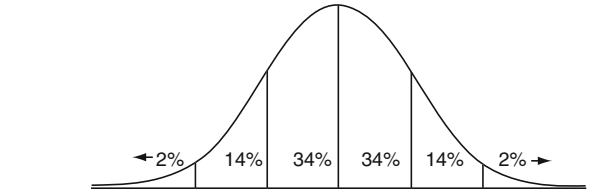
The *standard normal curve* is the specific case of the normal curve where the mean is 0 and the standard deviation is 1 [1]. In this situation, the equation simplifies to:

$$f(x) = \frac{1}{\sqrt{2\pi}} e^{-x^2/2}$$

Standard Scores and the Normal Curve

One cannot describe the relevance of the normal curve to child development without a brief discussion of standard scores. A sample of standard scores are positioned beneath a normal curve as shown in Fig. 1.

The height of the curve represents frequency of occurrence. Below the curve, the x-axis can be marked off in terms of the number of standard deviation units (σs) below or above the mean. Beneath these are laid out z-scores: −3, −2, −1, 0 (the mean), +1, +2, and +3, as well as Scholastic Assessment Test (SAT) scores. Likewise, IQ scores (e.g., as in current Wechsler and Stanford-Binet IQ tests) are listed: 55, 70, 85, 100, 115, 130, and 145 [2]. In the normal curve, these scores cut off fixed percentages of the cumulative area under the curve. For example, according to the normal distribution, approximately 34% of the population falls between the mean (IQ = 100) and one standard deviation above the mean (115). Further, adding the *total* area under the curve to the left of the 115 IQ score, one arrives at 84% (i.e., 50% to the left of the mean, plus 34%). Thus, according to the normal curve, an IQ score of 115 should be the 84th percentile, meaning that 84% of the population have an IQ score below 115. The percentile rank of *any* score on the x-axis



Std. dev.	−3σ	−2σ	−1σ	0	−1σ	−2σ	−3σ
z-scores	−3	−2	−1	0	+1	+2	+3
T-scores	20	30	40	50	60	70	80
SAT	200	300	400	500	600	700	800
IQ tests	55	70	85	100	115	130	145

Normal Curve. Fig. 1 Area and standard scores under the normal curves.

(be it z, T, IQ, etc.) can be derived from a table of areas under the normal curve, as found in statistics' textbooks.

Also, in the normal curve, about 68% of the population falls between −1 and +1 standard deviation units from the mean, approximately 95% falls between −2 and +2 standard deviation units out, and nearly 100% fall between −3 and +3 standard deviation units to either side of the mean.

Normalized Scores

It is important to note that, when testing companies norm tests (e.g., administer a newly-developed IQ test to students of different ages to produce normative data), the resultant distributions of scores are never perfectly normal [6]. So, test developers often *normalize* their data [4]. That is, they assign specific IQ scores so as to reflect normal curve expectations regarding areas under the curve. For example, say that a particular score on their new test was the 84th percentile in their distribution. Since the 84th percentile *should be* the score one standard deviation above the mean in a normal distribution, that score (whatever it was) will be labeled a 115. Thus, later on, someone interpreting that 115 IQ score would be correct in thinking of it as the score representing the 84th percentile. By definition, T-scores are normalized. Also, scores on the major IQ tests are normalized. So, too, are Normal Curve Equivalent (NCE) scores, which are used in Title I programs. However, simple t-scores, and college admissions tests, such as the SAT and ACT, are not. Thus, for example, an SAT score of 600 – while one standard deviation above the mean – does not necessarily indicate that 84% of the students performed below that score when that version of the test was administered. Hence, while one can usually assume normal curve percentages in looking at IQ scores, one must look at the reported percentile ranks that accompany the scores on other tests, such as college entrance tests like the SAT and ACT [5].

Relevance to Childhood Development

Assessment in Special Education

The primary relevance of the normal curve to childhood development is in the assumption of normality with regard to distributions of test scores, such as those resulting from intelligence tests. Over the years, for better or for worse, comparing a child's IQ test performance against the normal curve has been a systematic way of looking at individual differences and classifying children for special education services. Historically, below an IQ score of about 70 (i.e., a score more than two standard deviations below the mean), children began to be classified as mild mentally handicapped, with lower and lower scores defining increasing degrees of mental retardation (i.e., mild, moderate, severe, and profound, respectively). Similarly, scores on standardized measures of adaptive behavior (competencies outside of school) are compared against the IQ score, with an eye toward agreement between the tests.

Likewise, at the high end of the distribution, IQ scores based on the normal curve are used to identify children for gifted programs. Here, the cutoff IQ score required for such programs tends to be around 130 (two standard deviations above the mean); however, cutoff scores vary widely depending on state and/or school district criteria.

Further, children's learning disabilities are often identified by examining discrepancies between IQ and achievement test scores. Differences between the scores are quantified in terms of standard deviation units (e.g., a difference of 1.5 standard deviation units). Again, such scores (and standard deviations) have their foundation in the normal curve.

A more general way that the normal curve is related to assessment is in the practice of *grading on the curve*. This grading approach suggests that certain percentages of grades are expected at the various levels of A, B, C, D, and F. While not precisely wedded to the expectations of the normal curve, this technique none-the-less reflects the impact of the normal curve our view of how to assign grades in the classroom.

Some other Implications

Beyond school-related assessment issues, the normal curve relates to child development in a variety of ways. For example, consider the "No Child Left Behind" (NCLB) Act of 2001. This act seems to ignore the implications of the normal curve. That is, NCLB suggests that *all children*, regardless of where they fall in the distribution of mental abilities, are to keep pace with their classmates.

Other psychological constructs, such as depression and personality, can be measured in terms of normalized scores, with excessive departure from the norm being quantified in terms of deviation units from the mean. Further, the interpretation of physical and health-related measurements make use of the normal curve. For example, physical characteristics, such as height and weight, can be analyzed based on the normal distribution. Indeed, infants and toddlers are routinely compared to tracking charts by which the child's height and weight can be compared to others of their age group. The variation within an age group is roughly comparable to expectations resulting from the normal curve.

Finally, while not emphasized here, the concept of the normal distribution and assumptions of *normality* are pervasive throughout the fields of probability and statistics. Research conducted in the fields of child behavior and development rely heavily on statistical tests to evaluate their findings in terms of statistical significance. http://www.psychstat.missouristate.edu/introbook/SBK11.htm, retrieved on 8/29/08.

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Normal Curve Equivalent (NCE)

►Standard Scores

Normal Distribution

►Normal Curve

Normal Score

►Standard Scores

Normal Sleep

►Sleep

Norm-Referenced Intelligence Testing

►Intelligence Norms

Norm-Referenced IQ

►Deviation IQ

Norm-Referenced Scores

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Synonyms

Age equivalents; Grade equivalents; Percentile ranks; Scale scores; Standard scores; Stanines; Status scores; T scores; Z-scores

Definition

Scores that provide a measure of an individual's performance relative to that of other individuals possessing similar characteristics.

Description

Unlike mastery-oriented or criterion-referenced tests, *norm-referenced tests* do not yield scores that indicate the percentage of questions that a test-taker has answered correctly, or whether the test-taker has demonstrated competency in the domains being assessed. Rather, norm-referenced scores indicate how a test-taker has performed relative to individuals in the test's norm sample. Generally, norm-referenced test scores are developed through mathematical transformation of *raw scores* (the number of points assigned to an individual's responses) on a test into either a *normal* distribution (often referred to as, and/or visually represented by, a *bell curve*) or a *linear* distribution (in which the shape of the raw score distribution is maintained, rather than smoothed into a normal curve) of scores. Transformation of raw test scores to normally-distributed scores is generally based on the assumption that the trait or skill being assessed (e.g., intelligence) is normally distributed in the

population targeted by the assessment, with most people demonstrating typical levels of performance and relatively few demonstrating significantly higher or lower than average levels of performance, and enables users of test scores to understand and interpret scores in light of the mathematical properties of the bell curve.

The most commonly used types of norm-referenced scores include: *percentile ranks*, which indicate the percentage of individuals in the norm group who obtained lower scores than that of the test-taker; *deviation IQ scores*, which have a mean of 100 and a *standard deviation* (a measure of the variability in a set of scores) of 15; *T-scores*, which have a mean of 50 and a standard deviation of 10; *scale scores*, which have a mean of 10 and a standard deviation of 3; and *z-scores*, which have a mean of 0 and a standard deviation of 1. [several of these terms, including the italicized terms and standard deviation, should have their own entries that can be linked] Since the mean and standard deviation remain constant for each of the score types above, it is possible to determine how a given standard score from any test compares to that obtained by the typical individual in the norm group for that test. For example, a T-score of 70 would be well above average, while a deviation IQ score of 70 would be well below average.

It should be noted, however, that norm-referenced scores alone cannot be used to determine whether or not a given score meets a predetermined standard of performance and/or mastery (i.e., criterion-referenced interpretation). It is theoretically possible for all, or none, of the individuals taking a certain test to meet a performance or mastery standard; therefore, one cannot draw conclusions regarding whether an individual has mastered a given skill simply because that individual performs more or less strongly than other individuals taking the same test. For this reason, it is inappropriate to use norm-referenced scores alone to determine whether individuals have made progress toward standards or goals.

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Norm-Referenced Testing

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Synonyms

Standardized testing

Definition

A type of testing in which scores are derived through comparison of an individual's performance to that of other test-takers.

Description

Norm-referenced tests are designed to measure an individual's traits, behaviors, or abilities (e.g., cognitive ability, academic achievement, personality) by comparing the degree to which the individual demonstrates the trait(s) being assessed to others' functioning in that area. The group of individuals to which a test-taker is compared, often referred to as the *norm sample*, comprises individuals thought to be similar to the population of test-takers (i.e., the *reference population*) in one or more ways (e.g., age, sex, grade level, and/or presence of a clinical condition or diagnosis). Each test-taker's level of performance on a norm-referenced test is determined by comparing that person's performance against that of the corresponding norm group. Norm-referenced tests therefore yield ▶norm-referenced scores, rather than *criterion-referenced scores*, which denote performance relative to a predetermined standard or level of mastery.

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Norms

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Synonyms

Average; Mean; Median; Midpoint; Mode; Normal; Standard

Definition

The standard, normal or average. What is considered typical or usual.

Description

Although the word *norm* has a variety of definitions depending on usage, for the most part, in terms of child development the word refers to the average and in many cases designates a benchmark for the state of maturity of a particular trait or capability. These benchmarks are often referred to as "developmental milestones" and serve to provide parents with useful standards against which to assess the healthy development of their children.

In terms of standardized testing, the norm refers to comparison group performance against which test takers will be assessed. In this case, the norm defines the average performance for the group often parsed by age or other characteristic trait in order to assure relevance. Norm groups are usually comprised of individuals chosen at random and in a manner that intends to be representative of subsequent test takers. This means that judging the usefulness of a particular score on a "norm referenced" test requires knowledge of the constitution of the comparison group and the recency of the data collection against which normative decisions will be made.

The word norm also describes a set of rules or social expectations that influence or determine particular behavior. These group expectations relate to usual or define "appropriate" individual behavior and derive their particular motivating impetus from the associated and consequent rewards or sanctions. Norms depend on group acceptance, adherence and enforcement.

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Nourishment

▶Nutrition

Novelty

▶Creativity

Novelty Seeking

▶Curiosity

Novo-Poxide

▶Chlordiazepoxide

Nuclear Family

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Definition

A nuclear family is a family unit consisting only of a father, mother, and children.

Description

Most western societies continue to view the nuclear family as the traditional family, meaning a relationship denoted by a heterosexual, monogamous, and legally married couple (i.e., male and female) with children, living apart from relatives. This particular social structure is often taken to be the ideal social unit that all other family structures are measured against [1, 6]. Within this family structure, the male is often the breadwinner and the head of the household while the female is the homemaker and operates within a subordinate role to the husband. This particular family unit tends to be patriarchal in structure [5].

The nuclear family structure first arose among the wealthy class in northwestern Europe, and has endured, as some argue, as the dominant ideal from the Victorian

era in the West until the 1960s [2]. The nuclear family was seen as the result of a progressive evolution of family structures. This family structure was shaped by three underlying assumptions: romantic love, maternal love, and domesticity. During pre-modern periods, couples married based on family and community dictates. Couplehood was not an outcome of romantic love but of familial obligations. However, evolution of the family structure emboldened couples to choose one another based on mutual attraction. The maternal love sentiment assumed that women had a maternal instinct to take care of young children and that the raising of children was primarily their domain. The third sentiment, domesticity, assumed that relationships within the family were far more important and powerful than relationships outside of the family. As a result, the theories that were generated from this modern period elevated the benefits of the domesticity family structure over others [2].

Some argue that the nuclear family has been under pressure due to an increase in the divorce rate [2]. In 2007, 67.8% of American children lived in two parent households [6], a prominent decrease from 85% in 1970 [3]. Additionally, there are ethnic variations in family composition, with 87% of Asians, 78% of non-Hispanics whites, 68% of Hispanics, and 38% of Blacks living in households with two biological parents. Some scholars predict that, by age 16, 40% of American children's parents will divorce and that this percent will increase by 2% every year [3].

In today's society, the nuclear family is just one social composition of the contemporary and/or postmodern family. Contemporary families may consist of traditional nuclear families or many other types of immediate family relationships with or without children living in the same dwelling or living separately: single divorced parents, single unmarried parents, remarried families, unmarried partners, gay or lesbian partners, single adults, widows or widowers [1].

Though there are several family structures, the traditional structure is often used as the basis of comparison for other family types. Numerous studies exist that document the relationship between family structure and child well-being. Such research often points to the disadvantages for children being raised in non-traditional families. More times than not, research findings suggest that children from single parent families are more likely than their peers from two parent families to participate in risky behaviors and suffer health problems. In addition, children in stepfamilies as compared to their counterparts in two-parent families perform poorly in school, and have behavior and health problems. Additionally, research has documented that single parents are often stressed by economic strains and social pressures as compared to two-parent households [7].

While there are numerous studies documenting the disadvantages of non-traditional families, there are other studies indicating that the relationship between family structure and student outcome is far from predictive. Some of these studies have noted that family structure did not significantly influence student achievement [3, 4], finding that, regardless of family type, parental expectations were a much stronger predictor of student achievement than parental structure. Additionally, O'Connor, Miranda, and Beasley noted that student's ability was a stronger predictor of academic achievement than family structure [3].

In summary, the nuclear family structure comprising of a legally married man and woman with children is often viewed as the traditional family structure. Though this unit is often viewed as the ideal, it continues to be modified due to the increasing divorce rate and societal demands.

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Nuclear Magnetic Resonance Imaging (NMRI)

►Magnetic Resonance Imaging
►Magnetic Resonance Imaging (MRI)

Nuclei of the Raphel

►Raphe Nuclei

Nursing

►Breastfeeding

Nutrition

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Synonyms

Diet; Food; Health; Nourishment

Definition

Having to do with one's overall health and includes a proper balance of diet and exercise.

Description

Nutrition is a broad topic encompassing both the dietary intake and physical activity level of an individual. Several factors can effect one's view of and ability to receive proper nutrition, including: race, gender, ethnicity, culture, time, motivation, money, lack of information, conflicting information, geographic location, etc. ([2], p. 624). One's nutrition is often based on his/her Body Mass Index, BMI = weight in kilograms divided by height in meters squared ([1], p. 501). Improper nutrition can lead to physical health problems including obesity and diabetes and can also lead to emotional issues among some people. For proper nutrition it is recommended to have a proper balance of fruits, vegetables, grains, and proteins in one's diet.

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NVLD

►Nonverbal Learning Disability

O

Obedience

►Conformity Among Adolescents

Obesity

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Synonyms

Corpulence; Fatness; Overweight; Plumpness; Stoutness; Weight

Definition

Obesity is a condition of excessive body fat.

Description

Excessive body fat is a result of a high caloric intake and low activity level so the body is not burning off extra calories. Body fat is estimated through the calculation of body mass index (BMI). The BMI rates obesity at three different levels. A BMI of 30.0–39.9 is obese. Severely or morbidly obese is a BMI of 40.0 or higher. And, in a case where the presence of a significant comorbidity, such as adult on-set of diabetes or depression, exists, a BMI of 35.0 or higher is classified as morbid obesity. Diagnosis is made when body weight is higher than the set standard for height and body type. Variables causing this condition are complex and include genetic, biological, behavioral and cultural factors. Several serious health complications can occur, particularly cardiovascular disease, hypertension, diabetes (type 2), sleep apnea, and osteoarthritis. In addition, social and emotional issues usually develop. The disease is nor age or gender specific; however, usually begins in early childhood or adolescence and, if treatment does not occur, the probability of adulthood obesity is 80%. Also, diagnosis is more prevalent in males than females. In regards to treatment, maintaining healthy eating habits and a weight-management program, including physical activity, are essential in treating this condition.

Relevance to Childhood Development

Childhood obesity is diagnosed when a child's body weight is 10% higher than the recommended norm for height and body type. A BMI of 25, which is the score for adult overweight, is used to classify obesity in children. The condition is most commonly caused by higher caloric intake and low physical activity; however, hormonal conditions and genetic diseases, such as Prader-Willi and Bardet-Bieldl syndromes, can increase the chance of childhood obesity. Genetics, medications (i.e., steroids and specific psychiatric medications), self-image, social and emotional problems are also contributing factors in the cause of this condition. In addition, low income children are at great risk due to lack of parental availability and opportunity to provide time and resources in promoting a healthy and active lifestyle.

Childhood obesity carries risk in developing serious health problems early in life in addition to complication listed above. Children are susceptible to metabolic syndrome, asthma and other breathing disorders, liver disease, early puberty or menarche, eating disorders, and skin infections. In addition, orthopedic complications can occur. Developing bone and cartilage are not strong enough to bear the excess weight and as a result children can become bow-legged or develop overgrown leg bones. Also, the excessive weight on the hip growth limits range of motion and causes extreme pain. Emotional and social difficulties are at high risk of emerging. Low self-esteem and bullying can occur; thus, leading to depression. Poor social skills and behavior problems are associated with this condition as well as social isolation and social withdrawal. School related anxiety and stress can also become problematic and impact academic performance.

Treatment of obesity is not age specific; however, there are issues unique to childhood. Issues are monitoring school meals, eating meals as a family, limiting snacking, not using food as a reward, creating a balanced food list

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that the entire family can enjoy, and reduced eating in restaurants. Attending a support group, working with a dietician or counselor is also important. Treatment success for childhood obesity relies on active family and child involvement.

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Object Permanence

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Definition

Object permanence refers to a belief we have that objects and people exist independently and distinct from one another and such objects and people continue to exist independently and distinct whether or not we interact with the object or person.

Description

As a major component of Piaget's stages of cognitive development, the understanding of object permanence typically is achieved during the sensorimotor period of development. Piaget believed that the object concept (i.e., belief that objects remain permanent despite our interaction or lack of interaction with them) is developed in stages. During stages 1 and 2, the infant does not continue to search for an object even when it disappears from his or her view. However, by the end of stage 2, the infant is typically able to visually follow objects becoming focused on the object when it is still. In stage 3, the infant tends to anticipate where the object may go next. For example, the infant may look for a toy to emerge from the opposite side of a screen from which the toy entered. It is not until stage 4, however, that the child will physically search for objects and recover them. During stage 5, the young child begins to be less tied to their motor experience in their search for hidden objects and more able to view the object as separate. In stage 6, the child is able to find an object even when it has been visibly transferred among several places. That is, the child is aware that despite changes in location, the object has remained permanent. It is when the child has reached stage 6 of the object concept that Piaget believed the child has accomplished the sensorimotor stage and is ready for deferred imitation and symbolic play.

There remains some controversy on the stages of the development of the object concept in that several researchers have found that infants may achieve certain stages at earlier ages than Piaget hypothesized.

Relevance to Childhood Development

When a child achieves object permanence, he or she acquires an important developmental milestone that sets forth a cascade of other significant developmental milestones. In particular, it is an important link to language development as the child learns to use language to refer to an object that while outside of the child's perception, continues to exist.

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Object Relations Theory

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Synonyms

Fairbairn's psychoanalytic theory; Good-enough mother; Psychoanalytic theories of development

Definition

A group of psychoanalytic theories built on the assertion that being connected to other people is a basic and essential part of human nature. Object relational theories focus on the early parent-child relationships, and the way those experiences form later adult personality and psychological functioning.

Description

Although the Object Relational theories span some range, they share a basic premise first articulated by W.R.D.

Fairbairn. Fairbairn took issue with Freud's assertion that libido (psychic energy) is pleasure seeking. If that were the case, he asked, then how would one account for the repetition compulsion, people finding themselves in the same unhappy circumstances many times over? Fairbairn proposed a radical change in Freud's classical theory (see Psychoanalysis), and asserted that "libido is not pleasure-seeking, but object-seeking." In Freudian terminology, "object" refers to the other towards whom our energies are directed. In contrast to Freud, who saw sex and aggression at core of human nature, Fairbairn placed human connection at the center of the psyche [1, 2].

The child's bond to the parents is not optional. When one considers the total dependence of an infant and young child, attaching to the parent would be a biological imperative. What *is* infinitely variable is the nature of the experience the child has through that bond, and who the child becomes in order to preserve that bond. The child then creates future relationships, happy or unhappy, using the same models of relationships created or "internalized" in early childhood.

One important aspect of internalized Object Relations theory is that the models developed are of the *relationship* of *self-and-other*. For example, the model of being submissive in relation to a domineering other includes information about both participants in the model. In expecting to be treated in a certain way, one acts as though it is inevitable, and creates a self-fulfilling prophecy. In Object Relations psychoanalysis, the analyst pays close attention to his or her reactions to the patient, using this as information about the relationship roles and expectations the patient is creating. People use what they know and create that which is familiar.

Object Relations theory explains why change is so difficult. Devotion to one's parents has limited what one is allowed to create, and who one is allowed to be. In order to change, the patient must be able to imagine another way of being, and also tolerate the loss of being defined as their parent's child. Change is seen as the ability to have more satisfying and deep relationships, and a sense of personal authenticity.

Object Relations theory has many contributors, some of whom include Michael Balint, Harry Guntrip, and D.W. Winnicott. While each has his own area of focus, there are unifying principles. First, that the human infant is prepared from birth to seek contact with others. Another assumption is that with a "good enough," expectable level of mothering, the child will develop toward health [3]. Object relations theory also values the notion of a private, core self that is coherent, ongoing, and that is the source of creativity.

Relevance to Childhood Development

Object Relations theory is a psychoanalytic theory that can be used in order to consider what children need in order to develop self-knowledge and relationships that will be rich and sustaining throughout life. Knowledge of psychoanalysis can be of immense value when choosing how to support a child's healthy development, and in helping parents provide "good enough" emotional care [3].

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Observational Learning

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Synonyms

Behavior modeling; Emulation; Modeling; Modeling technique; Social learning theory; Vicarious learning

Definition

Observational learning is a social learning technique that occurs via the use of verbal, visual, and auditory information that directs the subsequent behavior of the observer.

Description

Observational learning establishes a conceptual representation of the observed stimuli and interacts with the observers' personal schema prior to reenacting the modeled behavior or act. Since the observer is not instantly required to complete the modeled behavior, the learned behavior is dependent on the cognitive competence of the viewer.

Albert Bandura, a behavioral psychologist, worked extensively to develop studies that modeled behaviors within a developmental perspective. His studies focused on children and their abilities to actively model behaviors [2]. One study used of a Bobo doll (inflatable clown doll) to demonstrate the immediate effects of observational learning. In this study, children watched an adult

aggressively beat up a Bobo doll immediately prior to play time. This study was supported as the children demonstrated the modeled behavior during play on a similar Bobo doll. In result, many studies have generalized this mood dependent component of learning theory and its effects on children after prolonged exposure to violent and sexualized television programming/games. These media effects prime children for similar behavior [1].

Bandura found that four primary factors where necessary for modeling to produce sufficient observational learning. The first factor, attention, states that the level of attention given to the modeled behavior is correlated to the retention rate. For example, if you are watching a mundane reality television program (i.e., The Real World), you are less likely to successfully report detailed contents from the programming. Attention is also influence by your mood state, thus if you are sleepy or sick, you are less likely to recall information that you viewed.

The next important factor in observational learning surrounds the idea of retention. Therefore, one must be able to cognitively digest the information that was viewed and retain that information for later retrieval. The use of elaborate language and mental imagery increase the likelihood that the information will be stored deeply leading to more successful retrieval [1].

The next step involves the attention paid to the model, how it was encoded and how both of these components translate to the ability to reproduce the observed behavior. For example, a student can view another student win a spelling bee and become motivated to participate, but this does not equate to the child's ability to spell immediately. With practice, this child can continue to view the model student to emulate their abilities. Other evidence illustrates a student's ability to imagine themselves succeeding at a task can enhance performance. So, with our previous example, a child can show marked improvement at the spelling bee when attention, retention via practice, and imagery all intersect.

The final step, motivation, is critical to the activation of all the previous three steps. Motivation is the necessary factor for successful emulation of modeled behaviors. Without sufficient motivation, learning will not take place because the modeled behavior will be forgotten before it has a chance to be retrieved. Bandura suggests that there are both positive and negative motivations and his research indicates that negative motivation will lead to increased learning performance [2]. One can understand how observational learning is a developmental tool that models imbued behaviors to encourage children to produce positive behaviors in society.

Cognitive imitation is a form of mimicry whereas observational learning involves the digestion of a new behavior that is incorporated into the ultimate behavior. To conclude, observational learning is a form of improving the subsequent behavior and not to be confused with imitation.

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Observational Learning

▶Behavior Modeling
▶Modeling
▶Social Learning Theory

Observations

▶Behavioral Observation

Obsessive–Compulsive Disorder

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Synonyms

Anxiety disorders; OCD; OC spectrum disorder; Pediatric OCD

Definition and Description

Obsessive-Compulsive Disorder (OCD), as articulated in the fourth edition, text revision of the *Diagnostic and Statistical Manual of Mental Disorder* (DSM-IV-TR), is a prevalent anxiety disorder characterized by recurrent obsessions and/or compulsions that are time consuming, cause marked distress or significantly interfere with an individual's life [1].

Diagnostic Criteria

OCD is characterized as an anxiety disorder by the DSM-IV-TR [1]. It involves recurrent obsessions and/or compulsions that are time consuming (greater than 1 h a day), distressing, or interfere with functioning. Disrupted functioning may involve difficulties in normal routine, occupational or academic functioning, and usual social activities or interpersonal relationships. To receive a diagnosis of OCD, an adult must recognize that the obsessions or compulsions are excessive or unreasonable. The DSM-IV-TR does not provide separate diagnostic criteria for pediatric OCD; however, insight into the excessiveness or unreasonableness of the symptoms is not a diagnostic requirement for children. If a child or adolescent (or adult) fails to recognize the senselessness of their OCD symptoms they will receive the diagnostic specifier "with poor insight." The specific content of the obsessions or compulsions must not be confined to another Axis I disorder, and the symptoms may not be the result of the effects of a substance or a general medical condition.

Obsessions Defined

Obsessions are defined by the DSM-IV-TR [1] as "persistent ideas, thoughts, impulses, or images that are experienced as intrusive and inappropriate and that cause marked anxiety or distress" (p. 457). They are also described as ego-dystonic (i.e., the obsessional content is experienced as outside of one's control and inconsistent with one's values), even though the obsessional content is recognized as a product of one's mind rather than having been imposed from outside. The most common themes in pediatric populations are fear of contamination, fear of harm to self or others, and urges related to need for symmetry or exactness [16]. It is common for a child with OCD to have multiple obsessional themes.

Compulsions Defined

Compulsions are repetitive behaviors or mental acts, performed in response to an obsession, that function to prevent or reduce anxiety or distress [1]. A subjective sense of being driven to perform the compulsion in order to alleviate discomfort or reduce the probability of a feared consequence is often experienced. There is an important relationship between the obsessions and compulsions: the compulsions are completed to reduce or regulate obsessions or associated anxiety. Avoidance of situations that evoke obsessions, and reassurance seeking are commonly associated with OCD; however, these behaviors are not necessarily considered compulsions. The relationship between obsessions and compulsions is often logical even though the obsessions and compulsive behaviors are not. This is exemplified in the following commonly occurring obsessions and corresponding compulsions: fears of contamination and washing; need for symmetry and exactness (i.e., the need to have things "just feel right") and ordering/arranging, counting, repeating, and touching; fears of harming self or others and checking and reassurance seeking; aggressive thoughts and checking; sexual or forbidden thoughts and attempts to regulate or replace thoughts; scrupulosity/religiosity and praying, and the need to tell, ask, confess, and excessive declarations. The limited research on childhood hoarding (acquiring and saving items) suggests that prevalence rates for children approximate rates found in the adult population [2, 16], but pediatric hoarders may have a unique clinical presentation [14].

Epidemiology

Community studies estimate lifetime prevalence rates of 2.5% in adults and 1–2.3% in children and adolescents [1], and point prevalence rates of 0.5% in children and 1–3% in adolescents [16]. Unfortunately, OCD often goes undetected and thus, estimates of prevalence rates are likely underestimates [2, 4]. Roughly 80% of all cases of OCD have pediatric onset [3] with prepubertal onset more likely for boys and adolescent onset more likely for girls [11].

Comorbidity and Prognosis

Childhood OCD is often associated with a variety of co-occurring disorders including tic disorders, attention deficit hyperactivity disorder, conduct disorder and oppositional-defiant disorder, and anxiety and depressive disorders. Additionally, although at a lesser rate, childhood OCD has also been associated with eating disorders, body dysmorphic disorder, trichotillomania, and skin picking. In addition to psychological factors that are associated with OCD, the presence of the disorder can have devastating effects on a child's social and academic functioning and development. In most situations the disorder maintains throughout adolescence into adulthood, thus, indicating a need for early intervention.

Theories of the Development of Childhood OCD

Neurological/Biological

Structural anomalies have been noted in many areas of the brains of children with OCD including the striatum, dorsolateral prefrontal cortex, and anterior cingulate, including others [13]. Neuroimaging studies in adults have shown that the frontal-striatal-thalamic circuits are

associated with OCD and treatment response. Additionally, several neurotransmitters including serotonin, dopamine, and others are associated with OCD. Treatments based on neurological/biological models generally focus on regulation of neurotransmitter levels and in extreme cases, direct manipulation of brain regions through neurosurgery.

Behavioral

The behavioral model of OCD is generally tied into respondent and operant conditioning model named the two-factor learning theory. Even though this theory is not wholly supported, it has been one of the most practical models as it fostered the development of behavioral treatments of OCD. In the first factor of the two-factor theory, fear of particular stimuli develop through respondent conditioning processes. The second factor utilizes operant concepts. It is assumed that avoidance and escape behaviors – including compulsions – are negatively reinforced through reductions in obsessions and anxiety. Unless this chain can be broken, respondent, and operant extinction processes will not occur.

Cognitive

The cognitive model is based on dysfunctional information processing such as limitations in memory and sensory perception. For example, problems in working memory may cause someone to not remember if they locked the door or left it unlocked. Modern cognitive models focus more on dysfunctional beliefs and interpretations of intrusive thoughts. Cognitive styles that can lead to OCD include overimportance of thoughts, heightened belief that one needs to control thoughts, overestimation of danger, need for certainty, overestimation of responsibility, and a need for perfection. Modern cognitive interventions directly target these cognitive styles and attempt to teach more adaptive cognitive styles or reduce the importance of these styles.

Treatments

There are generally two approaches taken in the treatment of childhood OCD: psychotherapy, pharmacotherapy, or their combination. Pharmacotherapy is the most commonly employed intervention due to its ease of administration, not its effectiveness.

Pharmacological

The first medication to be approved by the National Institute of Mental Health was clomipramine. Since that time, multisite placebo controlled trials have demonstrated the utility of the following selective serotonin reuptake inhibitors (SSRIs): sertraline [10], fluvoxamine [12], fluoxetine [7], and paroxetine [8]. The supportive findings are somewhat complicated by the fact that there are no comparative studies between these agents. However, a meta-analysis of pharmacotherapy for childhood OCD found clomipramine to be more effective than SSRIs, but clomipramine's use is questioned because of the frequent side-effects [6].

Psychotherapies

The most supported types of psychotherapy fall under the cognitive behavior therapy umbrella of treatment procedures. Behavioral procedures generally involve exposure to feared stimuli and prevention of avoidance and escape behaviors. Cognitive procedures that are commonly used in the treatment of childhood OCD include cognitive challenging procedures or reappraisal of obsessions, or acceptance-based procedures. Consistent with current empirical evidence of the superiority of the combination of pharmacotherapy and CBT [15], a combination of these procedures is common.

Exposure with Ritual Prevention

Exposure with ritual prevention (ERP) is generally considered the gold standard treatment of psychosocial treatments for childhood OCD [5]. Although the exact function of ERP has yet to be determined, it is generally based on behavioral models involving extinction and habituation. This treatment generally begins with psychoeducation on OCD and the factors that maintain it. This involves a description of a conditioning model for its development and focuses on the role of escape and avoidance in its maintenance. Next, children are assisted in creating a hierarchy of situations that evoke increasing levels of obsessions and anxiety. At each step in the hierarchy, children are taught that if they allow the obsessions and anxiety to occur and do not escape (either overtly or covertly) that these inner experiences will gradually decrease. The therapist uses ritual prevention procedures to limit escape responses. Over repeated ascending trials through the hierarchy children experience less obsessions and anxiety in these situations.

Cognitive Therapies

Cognitive procedures were added to the behavioral treatment of OCD for two reasons: to increase acceptability of exposure therapy and/or to more directly target the cognitive processes involved in the disorder. Although cognitive procedures sometimes include behavioral exercises that share formal similarities to behavioral treatments, their focus is on challenging inaccurate cognitions or developing reappraisals of one's obsessions. Cognitive

procedures such as cognitive restructuring focus on testing the accuracy of one's cognitions and developing more accurate and adaptive ones. Reappraisal of cognitions targets beliefs about the meaning of obsessions. For example, if a child feels he is dangerous because of obsessions involving harm, the child might be instructed to survey people to see if they have similar thoughts. If other people have similar thoughts, then the child can assume that his thoughts say little about himself.

Acceptance and Commitment Therapy

The use of acceptance and commitment therapy (ACT) [9] procedures with OCD is relatively new and therefore only data on its effectiveness with adults exists. ACT as a treatment for OCD focuses on altering the function of one's obsessions and associated anxiety rather than targeting the content of OCD-related inner experiences. ACT as a treatment for OCD also helps children focus on areas in their lives that they find important and meaningful (called values) and to spend a greater amount of time pursuing these areas. Therefore, ACT as a treatment for OCD does not utilize exposure exercises as they are traditionally conceptualized. When pursuing a valued area of life the child will likely encounter stimuli that occasion obsessions. The child is instructed to continue in her valued direction and to use other ACT processes to help alter the function of the obsession and anxiety.

Neurosurgery

In highly crippling, treatment refractory cases of adult OCD, varieties of neurosurgery or brain stimulation are utilized. To date, there are no published reports of these procedures with children or adolescents. This is likely due to the need for the OCD to be highly treatment resistant, and that it is unlikely that all resources will have been exhausted while someone is still in childhood or adolescence.

Suggested Resources

Organizations

1. Association for Contextual and Behavioral Science: www.contextualpsychology.org
2. Association for Behavioral and Cognitive Therapies: www.abct.org
3. Anxiety Disorders Association of America: www.adaa.org
4. Freedom from Fear: www.freedomfromfear.org
5. Academy of Cognitive Therapy: www.academyofct.org
6. International OCD Foundation: www.ocfoundation.org

Books for Professionals

1. John, S.M., & Karen, M. (1998). *OCD in children and adolescents: A cognitive-behavioral treatment manual.* New York: The Guilford Press.

Books for Consumers

1. John, S.M. (2007). *Talking back to OCD: The Program that helps kids and teens say "no way" – and parents say "way to go".* New York: The Guilford Press.

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Obstructive Hydrocephalus

►Hydrocephalus

Obstructive Sleep Apnea Syndrome

►Sleep Apnea

OC Spectrum Disorder

►Obsessive–Compulsive Disorder

Occipital Lobe

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Definition

The Occipital lobe is the most posterior lobe of the cerebral hemispheres and is primarily related to visual processing.

Description

The Occipital lobe is the most posterior lobe of the cerebral hemispheres. It is bordered anteriorly by both portions of the Parietal and Temporal lobes. From a functional standpoint, the Occipital lobes primary role is in vision [4]. Specifically, the Occipital lobe receives primary visual input and mediate perception of visual material before further processing occurs in more anterior regions within the Parietal and Temporal lobes [2]. The Occipital lobe itself can be seen as containing a hierarchy of areas and different processing streams that correspond with the various means of visual processing [3]. First, visual processing can be divided amongst two individual pathways referred to as the ventral and dorsal streams. These originate in the Occipital lobe and are functionally related to object recognition (Ventral stream) and visual action (Dorsal stream) [3]. Working in combination with these pathways are the various areas of the Occipital lobe that correspond with different aspects of visual processing. The first two areas, commonly depicted as V1 and V2 play a role in most aspects of visual processing and thus likely represent those areas depicted as the primary visual cortex. Beyond these more robust areas is V3 which assists in the processing of dynamic form as part of the ventral stream as well as more general form processing as part of the workings of the dorsal stream [3]. In comparison, V4 solely operates within the Ventral stream and serves to assist in recognition of color form whereas V5 operates almost exclusively within the Dorsal stream assisting the processing of motion [3]. Prior to any visual information being processed by the Occipital lobe the information is received by the Thalamus. Specifically, the Lateral Geniculate, Pulvinar, and Lateral Posterior nuclei of the Thalamus initially receive different forms visual information and then relay it onto the cortical areas of the Occipital lobe, with the primary visual areas being the first to receive that information [1].

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Occupational Health Psychology

►Health Psychology

OCD

►Obsessive–Compulsive Disorder

ODD

►Oppositional Defiant Disorder

Olanzapine

►Zyprexa®

Older Worker Discrimination

►Age Bias

OMIM 301500

►Fabry Syndrome

Ontogenetic Development

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Definition

Development that occurs as a function of experience rather than as a function of the genetic make-up of an individual.

Description

Ontogenetic development can be conceptualized as the portion of physical, cognitive, emotional, and social development that can be attributed to experiences with the environment and the individuals within the environment. In contrast, phylogenetic development refers to the portion of physical, cognitive, emotional, and social development that can be attributed to an individual's genetic make-up. Development found to be universal in normally developing children across categories such as culture or socioeconomic status can be assumed in many cases to be phylogenetic in nature.

The distinction between ontogenetic and phylogenetic development can often times be blurred by the interaction effect which occurs between the individual and the environment. In many cases both sources of development contribute to any developmental milestone or objective. Uri Bronfenbrenner's ecological systems theory represents a synthesis between internal and external sources of development. Some meta-analytic research on development (e.g., personality, social, emotional, etc.) suggests that the majority of an individual's development can be attributed to ontogenetic sources.

Relevance to Early Childhood

Sources of ontogenetic develop are directly influenced by caregivers and the environments to which young children are exposed. Learning environments that are constructed with intentionality and that purposefully engage children in meaningful activities serve as ontogenetic sources of development. Additional sources of influence are the social interactions of young children with peers and caregivers. Vygotsky's and Bandura's notions of learning through social interactions rely heavily on ontogenetic development; social interactions, in many cases representational play (i.e., role playing), lead to meaningful learning experiences.

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Ontogenetic Selection

►Operant Conditioning

Oocyte

►Ovum

Open Head Injury

►Traumatic Brain Injury

Open Head Trauma

►Traumatic Brain Injury

Operant Conditioning

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Synonyms

Conditioning; Instrumental conditioning; Ontogenetic selection; Operant learning

Definition

Operant conditioning is the selection of behaviors by their consequences. The study of operant conditioning involves descriptions, predictions and explanations of the effects of reinforcement and punishment on behavior.

Description

Operant conditioning occurs when a consequence (positive or negative reinforcement or punishment) is paired or ceases to be paired with a behavior and it increases or decreases the likelihood that behavior will recur. Psychologist B. F. Skinner [3] called this process "operant" conditioning to express the idea that "changes in rate of occurrence (of the behavior) are brought about by various operations performed upon the organism (p. 21)." In other words, the relationship between a behavior and its consequences operates on the rate at which an individual emits that behavior. By contrast, in ►classical conditioning, the relationship between an unconditioned and a conditioned stimulus can cause a behavior that was elicited by the unconditioned stimulus to be elicited by the conditioned stimulus as well. Operant behaviors, those susceptible to reinforcement and punishment, are sometimes termed "voluntary" behaviors to distinguish them from reflexes and fixed action patterns.

Reinforcement and punishment are the cornerstones of operant conditioning. Table 1 shows possible reinforcing and punishing consequences of behavior.

Getting a New Operant Behavior to Occur Through Shaping

Reinforcement and punishment have measurable effects on behaviors that already occur. In his "puzzle-box" experiments investigating the ►law of effect, E. L. Thorndike positively reinforced cats for emitting a particular response that led to escape from the puzzle box. Generally, he did nothing to encourage the response; he merely waited until it occurred spontaneously. A parent who attempted to train her child to sit quietly through a meal in the same manner would probably wait a long time without the behavior occurring spontaneously. Shaping is the use of successive approximation to produce new behaviors. For instance, a parent might begin by rewarding the child, perhaps with sips of a favorite drink, for something he does occasionally without prompting, such as sitting at the table when called. Once that behavior is established, the parent could make the requirement for earning a drink reward more demanding or specific; perhaps she would only provide the drink reward when the child comes to the table and sits quietly until he receives his dinner. Once he does that regularly, she might increase the duration required to earn a drink, until her child sits quietly through an entire meal.

Operant Conditioning. Table 1 Possible reinforcing and punishing consequences of behavior

		When a behavior occurs, a non-neutral stimulus is	
		Produced	Removed
Consequence produces	Satisfaction	Positive reinforcement: *A behavior has a pleasant consequence*: Nick eats all his vegetables, so he is allowed to have dessert.	Negative reinforcement: *A behavior prevents an unpleasant consequence*: Audrey wears a special nail polish to keep from biting her nails.
	Discomfort	Positive punishment: *A behavior has an unpleasant consequence*: Lucy shouts at her parents, so she must sit in the corner.	Negative punishment: *A behavior prevents a pleasant consequence*: Spencer watches a prohibited tv show, so his video games are taken away.

Decreasing a Behavior Through Extinction

Punishment is one way to decrease the frequency of a behavior, but it is not always the most practical or effective way. Extinction is similar to negative punishment in that is decreases behavior by removing something. Whereas with negative punishment, a pleasant stimulus is removed, with extinction it is the relationship between response and consequence that is removed. Extinction is the condition in which a reinforcer that was previously a consequence of a behavior no longer occurs when the behavior is emitted.

Factors Affecting Operant Conditioning

Many things can affect how quickly an individual acquires a behavior and how much of an impact a consequence has. Hereafter only positive reinforcement will be discussed, however similar effects occur with punishment and negative reinforcement. Factors that affect operant conditioning can be temporal, spatial, perceptual, or a combination of those and can deal with the nature of the response, of the reinforcer or the relationship between them. Experimental analysis of behavior is the empirical study, mathematical description and theoretical explanation of these factors. A non-exhaustive list of factors:

- Rate of reinforcement – how often reinforcement occurs
- Response requirement – how many responses it takes to earn a reinforcer
- Reinforcer delay – the amount of time that elapses between the operant response and reinforcement
- Reinforcer magnitude – the size or amount of each reinforcer
- Reinforcer probability – the probability a reinforcer will be delivered, once earned.

Variability

In laboratory and clinical settings and to some extent in life generally, the factors affecting operant conditioning can vary a lot, a little, or not at all. In interval schedules [2], a certain amount of time must pass before a response will produce reinforcement. Consider a rat pressing a lever for food. In a fixed interval 20-s schedule, at least 20 s must pass between the start of the trial (an event usually signaled by some stimulus) and the reinforced response – any lever-presses before the 20 s are up have no effect, but the first response after 20 s has elapsed always produces food. In a variable interval 20-s schedule, an average of 20 s must elapse between the start of a trial and the reinforced response, but the interval in each trial varies. There are different types of variable-interval schedules. In a mixed interval schedule, reinforcement might become available after 5 s on half of trials and 35 s on the other half. Variable intervals schedules often involve lists of intervals drawn from arithmetic progressions. Although it is not possible to predict when a reinforcer will become available on any single trial in such a situation, the probability that a reinforcer is available increases with time. Random interval schedules are memoryless – the time elapsed does not determine time left.

Microwaveable food is an example of reinforcement that is available on a fixed interval schedule, as it takes exactly the same amount of time to cook each time. The response (opening the microwave door) is reinforced only after a particular amount of time since trial onset (programming the microwave) has elapsed. Buses typically operate on variable interval schedules. Unless your bus always arrives exactly on schedule, it is impossible to time your arrival at the bus stop to coincide precisely with that of the bus. Fortunately, waiting for a bus is not memoryless – the longer you wait, the likelier it is the bus will come. Telephone conversation durations are exponentially distributed. Thus, telephone conversations are memoryless; you cannot predict how much longer someone will be on the phone based on how long that person has already been on the phone.

Just as rate of reinforcement can be fixed or variable, so can response ratio, delay, magnitude, probability and other factors affecting operant conditioning.

Selection by Consequences

The words "selection by consequences" are most often used to describe Darwinian natural selection, or evolution. Of course, the principle applies to operant behavior in a similar manner. With evolution, the environment exerts selective pressure on species such that those individuals (or those genes) that are best adapted to the environment have the greatest reproductive success. With operant behavior, the environment exerts selective pressure within an individual such that those behaviors that are most adaptive for the situation are most likely to recur [1, 4].

By combining simple schedules with different rates, magnitudes, delays, probabilities, response requirements and other factors in laboratory settings, it is possible to study complicated behavioral mechanisms. The study of operant conditioning has provided significant insights into many aspects of behavior, including choice, stimulus control, behavioral ecology and optimality.

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Operant Learning

►Operant Conditioning

Operant Learning and Applied Behavior Analysis (ABA)

►Applied Behavioral Assessment

Operations

►Arithmetic

Opioids

►Depressants

Oppositional Defiant Disorder

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Synonyms

Disruptive behavior disorder; ODD

Definition

An enduring pattern of uncooperative, defiant, and hostile behavior toward authority figures that is not accounted for by the child's developmental stage and results in significant functional impairment in the child's life.

Description

Symptoms

The behaviors and symptoms of Oppositional Defiant Disorder (ODD) become evident before a child is 8-years old and usually is not diagnosed any later than early adolescence. The defiant behaviors often initially emerge in the home setting with adults the child is familiar with but over time the behaviors may also appear in additional settings as well. The defiant behavior is more likely to be observed with watching the child interact with an adult they are close to rather than with a stranger. The onset of oppositional behaviors is typically gradual, usually developing over the course of months or years. Males are more likely than females to receive a diagnosis of ODD before puberty, but after puberty the rates for males and females appear to be similar.

ODD is characterized by a pattern of negative behavior that is evident for an extended period of time. The child may frequently lose their temper as they are easily annoyed with other people. Arguing is common as these children may be spiteful and hostile towards others. Children with ODD have difficulty following rules and may purposefully try to irritate and annoy other people. They do not take responsibility for their actions, instead blaming others for their mistakes. These behaviors occur outside of what is typical for the child's age and development and impair their ability to function in their life.

Prevalence Rates

Various studies have noted different prevalence rates for ODD ranging from 2 to 16%. About half the children who show symptoms of ODD as children will outgrow them and show no symptoms of this or other psychiatric disorders. In 5–10% of children, there will be an eventual diagnosis of ADHD only. An additional 5% of children initially diagnosed with ODD will continue to have ODD and no other disorder. For 25% of the children with ODD, an eventual mood or anxiety disorder may develop. For other children their diagnosis may turn into Conduct Disorder instead.

Causes

While there are no known causes for ODD, a variety of factors have been found to be related to ODD. There may be a biological predisposition to ODD as a child is more likely to have it if one of their parents has it. If a parent is alcoholic and has been in trouble with the law their children are almost three times as likely to have ODD. Children whose parents have marital problems or where violence is demonstrated in the home have a greater likelihood of developing ODD. Some children may develop ODD as a result of a neurological injury or chemical imbalance in the brain.

Diagnosis

According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) [2], ODD is a psychiatric disorder where persistent defiant behavior is demonstrated for a period of at least 6 months. In the 6-month period, four or more of the following behaviors must have occurred: (1) frequently losing their temper, (2) frequently arguing with adults, (3) frequently defying or refusing to comply with the rules and requests of adults, (4) frequently purposefully trying to annoy other people, (5) frequently blaming others for their mistakes and misbehavior, (6) frequently touchy or easily annoyed by other people, (7) is often angry and resentful, (8) is often spiteful or vindictive. In addition to demonstrating these behaviors they must occur more frequently than is typically observed in individuals of comparable age and developmental level. Their negative behavior patterns also must lead to significant impairment in social academic or occupational functioning.

Treatment

There are several different forms of treatment that have been found to be helpful with individuals with ODD. Group, individual and/or family therapy is one method of treatment, with individual therapy being the most frequent. Parent management training is another strategy for treating ODD which involves teaching parents to use more effective practices when dealing with the oppositional behavior of their child. Cognitive-behavioral therapy is used to teach the individual effective problem solving skills. In addition, social skills training can potentially help the child develop more positive relationships with their peers.

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Optical Imaging

►Near-Infrared Spectroscopy (NIRS)

Optical Tomography

►Near-Infrared Spectroscopy (NIRS)

Oral Consumption

►Drinking

Oral Craving

►Oral Fixation

Oral Fixation

Synonyms

Oral craving

Definition

A fixation in Sigmund Freud's oral stage of development. The fixation manifests out of an obsession to stimulate the mouth, and is typical of infants who are developmentally in the oral stage. A maladaptive oral fixation in later life is thought to results from a failure to resolve the oral conflict during the oral stage; this can occur if the child is weaned too early or late, if the child is not fed enough or fed too excessively.

Description

Oral fixations in adulthood can manifest in two ways. When the child is underfed, they may become orally dependent and obsessed with oral stimulation. The child may grow up to become fixated on oral sex with other individuals regardless of sexual preference. When the child is overfed, the child may be resistant to growing up and revert to a state of dependency, where they act helpless, demand satisfaction, and are often described as having

a "needy" personality. Oral fixations are thought to cause being overly talkative, over-eating, smoking addictions, alcoholism, sarcastic personalities, nail biting, putting fingers in one's mouth, and biting sexual partners.

Oral Reading

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Synonyms

Reading aloud; Word recognition in context

Definition

The oral translation of printed or written material, often used as measure of a student's overall reading performance to examine aspects of reading accuracy, fluency, and comprehension that cannot be observed directly from the act of silent reading.

Description

Oral reading performance is used as an indicator of students' overall reading ability. It is used to measure three components of reading, accuracy, rate, and fluency, which have been shown to relate strongly to comprehension (Fuchs et al., 2001, [1]). Students are asked to read aloud from selected grade-level passages, and scores are based on accuracy, rate, and fluency. Listening to students reading aloud provides valuable insights into the covert cognitive processes used to decipher and comprehend printed materials.

Accuracy refers to the precision with which a student's oral reading conforms to the letter-sound conventions of printed English [1]. It is measured as a percentage of words read correctly (WRC). This is determined by recording the number of errors, calculating the number of WRC, and dividing the number of WRC by the total number of words in the passage. Errors include omissions, substitutions, insertions, and mispronunciations. Variant pronunciations resulting from regional, dialectical, or nonnative speech are not considered errors unless they result in changes to the meaning of the text. Self-corrected errors are considered accurate responses. Accuracy is important for comprehension since decoding mistakes can lead to errors that result in changes to the meaning of the text. Student's demonstrating a 95% rate of WRC are said to be reading at an instructional level.

Rate refers to the speed at which the student reads aloud. It is measured as the number of words per minute read aloud for the entire performance, or as the number of words read during the first minute.

Accuracy and rate are components of fluency, but fluency also includes phrasing, expression, and adherence to the author's syntax [1]. Generally, higher scores on accuracy and rate of oral reading indicate greater fluency. Higher levels of fluency are associated with higher overall reading proficiency. Research suggests that increased fluency frees up available attention and memory resources for development of comprehension.

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Oral Skills

▶Verbal Skills

Oral Stage

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Definition

First stage of Sigmund Freud's psychosexual stages.

Description

Sigmund Freud (1856–1939), an Austrian physician, developed a theory of psychosexual stages. He maintained that how the family dealt with the child's sexual and aggressive drives in the first years of life was critical for healthy personality development [[1], p. 16].

According to the theory, the first year of life the mouth is the source of pleasure [[2], p. 14]. The basic human need for food causes the baby to suck the breast or bottle and fulfill the need. If the oral needs of the baby aren't met, the child may develop habits such as thumb sucking, fingernail biting, overeating or smoking later in life [[1], p. 17].

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Oral, Anal, Phallic, and Genital Stages

►Psychosexual Stages, of Freud

Order of Birth

►Birth Order

Orientation Reflex

►Orienting Response

Orientation Response

►Orienting Response

Orienting Reaction

►Orienting Response

Orienting Reflex

►Orienting Response

Orienting Response

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Synonyms

Orientation reflex; Orientation response; Orienting reaction; Orienting reflex

Definition

The typical definition given for the orienting reflex is "...an organism's innate reaction to a novel stimulus" [2], p. 207] but such a definition fails to properly reflect the complexity of the orienting response. While it is typically seen as occurring to a novel stimulus and it is an unlearned response, the orienting response has been studied for over 90 years and entire volumes are devoted to this response. While most studied in mammals, Pavlov, who first described the orienting response in 1910 [3, 5] considered it a response characteristic of animals in general and it has been extensively studied in humans [1].

When an animal is exposed to a novel stimulus or a familiar stimulus that is unexpected, as in a predator detecting a scent of prey (or a prey detecting a predator), the animal will engage in a complex behavioral repertoire of sensory, skeletal-muscular, and autonomic responses that compose the orienting response. According to Sokolov [6], the main factors of a stimulus that evoke the orientation response are novelty, intensity and the significance of the stimulus; Sokolov [7] considered the orientation response as being directed towards the extracting of information from the immediate environment. Like any evoked, innate response, the orienting response will display habituation if the eliciting stimulus is sufficiently repeated, followed by spontaneous recovery if the eliciting stimulus is withheld for a sufficient time following habituation [2]. The orienting response will also display a recovery of the strength of response if an extraneous stimulus is presented during the course of habituation [9].

Pavlov discussed the orienting response as being an "investigating (or investigatory) reaction" as well as a "what-is-it reaction" [3, p. 1, 9, p. 27]. Lynn [3] cataloged the various responses that are collectively referred to as the orienting response.

1. There are changes in the sensitivity of sensory organs-the pupil becomes dilated, the light-sensitive cells of the retina undergo a lowered threshold for light, and the threshold for hearing is lowered to increase sensitivity.

2. There are changes in localized skeletal muscles involved in observing the stimulus-the animal can be seen to turn its head towards the stimulus, its ears are cocked towards the stimulus, inhalation of air for sniffing occurs. In humans, only some of these occur.
3. There are changes in the general movement and muscle tone – the animal typically freezes at least temporarily, the general state of muscle tone is increased and electrical measures of muscle tone (the electromyogram or EMG) shows increases, indicating a generalized state of increased readiness potential.
4. Measures of brain waves are indicative of increased arousal and focused attention – typically this means a faster frequency and lower amplitude pattern of brain waves is seen in the electroencephalogram (EEG), i.e., beta activity predominates in the EEG.
5. A constellation of autonomic nervous system changes can be observed in various systems – blood vessels in the limb constrict (vasoconstriction) while blood vessels in the head dilate (vasodilation); changes in electrodermal activity occur such that the skin's conductance of electricity is increased, referred to as either the galvanic skin response (GSR) or the skin conductance response (SCR).
6. Besides the autonomic changes just listed, there are changes in measures of respiration – a pause in breathing occurs, followed by an increase in the amplitude accompanied by a decrease in the frequency of breathing.
7. Changes in heart rate are observed but which are termed highly variable; most often humans show a decrease in heart rate.
8. Since the writing of Lynn [3], other subsequent writers have added transient changes in the EEG to the above list. These fleeting changes in the EEG, termed event-related potentials (ERPs) are caused by specific environmental events such as a flashing strobe light. The ERP is characterized by a characteristic positive or negative variation (an upward or downward deflection, respectively) in the EEG with specific temporal parameters and which are stimulus specific [1, 8].

Sokolov [5, 6] outlined other orienting response distinctions – the generalized orientation reaction and the localized orientation response; these are characterized by specific EEG patterns and changes and by the extent to which the EEG changes could be localized to distinct cerebral cortex areas. The localized and generalized orientation responses also show differences in the rate that each shows habituation to the evoking stimulus. Sokolov [6] also distinguished between the orientation response as described, which he considered to be "information-gathering" and a defensive response which would be evoked by intense, painful or potentially painful events. Any stimulus in any sensory modality would have be in excess of some minimum value for an orientation response to be elicited; as stimulus intensity increases further, it can reach values that are painfully stimulating, at which point the orienting response is replaced with a defensive response [1].

There are variations in the orienting response from individual to individual; all of the components outlined above do not always occur in all subjects and there are differences in the various combinations and in the magnitude of the component responses of the orientation response [3]. Some of the variations observed with the orientation response are considered diagnostic signs of some psychiatric conditions [4]. The significance of the normal or typical orientation response is still under investigation and might have important roles in the responses that cognitive psychologists term "information processing" [8].

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Original Habit Reversal

►Habit Reversal

Originality

►Creativity

Orthographic Awareness

►Orthographic Reading Skills

Orthographic Reading Skills

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Synonyms

Orthographic awareness; Phonemic awareness; Phonological decoding; Reading

Definition

Orthographic reading skills refer to the ability to identify patterns of specific letters as words, eventually leading to word recognition. With development of these skills, reading becomes an automatic process. The spelling, pronunciation, and meaning of a word are unified and the information is accessed simultaneously upon visual presentation of an individual word [5, 10].

Description

In the English language, ►orthography is based on the alphabet system and refers to the set of rules applied to reading, spelling, and pronunciation. English orthography is rather complex as words can be read, spelled, and pronounced in multiple ways. Unlike other languages, the relationship between ►graphemes and ►phonemes is inconsistent and cannot be generalized across words. For example, the recognition of homophones, homonyms, and unpredictable words is based on word-specific knowledge [9].

Because of the complexities of English orthography, it is necessary for English-speaking individuals to develop more comprehensive and extensive orthographic reading skills to access a word-specific knowledgebase and promote word recognition. The development of orthographic reading skills involves several components, including ►phonological decoding and ►phonemic awareness [2]; however, orthographic processing abilities are not dependent on phonological processing abilities. Words are identified based on phonological decoding, letter-sound associations and grapheme-phoneme correspondences [10]. As phonological decoding processes improve, phonemic awareness develops and knowledge of letter combinations is formed. Through the process of orthographic coding, print is recoded into phonological and orthographic representations, visual and spelling patterns used to identify individual words. Orthographic representations enable readers to access word meaning based on printed information [2, 5, 10].

Through repeated visual and oral vocabulary exposure, word associations and orthographic representations are strengthened and specific orthographic representations of words are formulated [2]. When individuals have acquired strong orthographic representations, they are able to access this information with fluency and automaticity [5].

Relevance to Childhood Development

Children generally acquire orthographic reading skills by learning the sounds of letters and basic vocabulary sight words. Although reading and spelling both require phonological decoding, reading is taught through visual methods, while spelling is mainly taught through phonology with an incorporation of some visual methods [5, 9]. The acquisition of orthographic word-knowledge is influenced by exposure to the words in print and contextual feedback regarding the pronunciation and meaning of the word [2]. Thus, children who receive repeated exposure to words within the context of the environment have stronger orthographic reading skills, are able to make more informed choices in orthographic tasks, and have improved reading comprehension abilities. As children grow older, their competencies in orthographic and phonological processing abilities increase [3, 5].

Nearly 20–40% of children are considered "at risk" for reading disabilities and encounter challenges in the process of developing orthographic reading skills. Children with reading disabilities present with varied problems. Some have difficulty applying phonological strategies, while others have weaknesses in orthographic word decoding [4]. Children who have impairments in phonological skills related to reading are thought to have ►developmental dyslexia. Subtypes of developmental dyslexia include phonological dyslexia and orthographic dyslexia. Phonological dyslexia involves greater phonological deficits, while orthographic dyslexia is characterized by greater orthographic deficits [4, 8].

Assessment

When children present with reading problems, comprehensive assessments in the areas of general cognitive abilities, reading, and language, such as the Wechsler Intelligence Scale for Children-4th edition (WISC-IV), the Peabody

Individual Achievement Test (PIAT), Woodcock-Johnson III Tests of Achievement, Woodcock Reading Mastery Test-Revised (WRMT-T) or the Comprehensive Test of Phonological Processing (CTOPP), can be beneficial in assessing skills and determining specific deficits (i.e., word recognition, accuracy, fluency, automaticity, phonological decoding, phonemic awareness, orthographic coding) [2, 6, 7].

When deficits of orthographic reading skills are thought to contribute to reading problems, several assessment tasks can be administered.

- Orthographic choice presents children with a list of items requiring the recognition of a target word against a pseudohomophone (e.g., *sammon/salmon*). The words can consist of one, two, three, or four syllables. Achievement on the task is dependent on accuracy and latency during trials [1].
- Homophone choice presents children with a question such as "Which can be eaten?" and requires them to determine an appropriate response from a list of homophones (e.g., *pair/pear*) [1, 2, 7].
- Embedded word presents children with a list of one-syllable words embedded within a strand of consonants, and requires children to identify the words (e.g., cvbdeepdmg). Achievement on the task is dependent on accuracy and latency during trials [7].
- Orthographic awareness presents children with pairs of pseudowords and requires children to identify whether the word "could be a word" or "looks like a word" (e.g., filv/filk) [7].
- Other orthographic tasks require children to delete a letter in a word and to read or pronounce the new word based on its spelling [7].

Intervention

Knowledge of children's specific reading deficits is useful when creating treatment plans. Interventions should be individualized and reflect a particular child's needs and weaknesses [2]. Thus, it is critical to determine whether a training program should primarily focus on weaknesses in phonological and/or orthographic word decoding skills [4].

In general, children with reading problems require extensive, systematic support and structured training. Remedial strategies should be implemented immediately to help children who struggle in developing adequate reading processes, i.e., phonological decoding skills. Early preventive interventions have demonstrated effectiveness in improving children's skills of decoding, and word automaticity and fluency [1, 2, 5, 6].

Deficits in orthographic reading skills are partially influenced by genetic and environmental factors. The speed and accuracy of orthographic coding and phonological decoding are affected by genetics, while orthographic processing abilities improve based on print exposure. Exposure to print can improve the efficiency of orthographic processing and word recognition, which results in better reading performance overall [1–3].

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Orton-Gillingham Reading Method

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Synonyms

Bottom-up approach; Multisensory teaching

Definition

The Orton-Gillingham reading method is a sequential, multisensory, and flexible approach to teaching language to children with dyslexia [1, 3].

Description

The Orton-Gillingham reading method presents children with the sequential basics of language starting with discrete information that is taught to mastery through the visual, auditory, and kinesthetic learning channels. This multisensory approach follows the sequential pattern of language with students mastering the most basic information before new, more complex information can be taught. By following a hierarchy, student learning is cumulative and flexible. Initially, students learn individual sounds for letters by hearing the sounds, saying the sounds, and writing the letter(s) representing the sounds. This sequence can be altered to focus on writing and spelling as well as reading, Through this approach students learn to read, spell, and write at their own pace [3].

History

During the late 1930s and 1940s, Dr. Samuel Orton and educator Anne Gillingham, developed their multisensory approach to literacy instruction for students with dyslexia. After parting professionally in the 1940s, Orton and Gillingham continued to pursue their approach separately. Orton proceeded with their program in its original form while Gillingham modified the original approach. The fundamental difference was in the area of spelling. Orton's method required students to say the sounds of a word when spelling while Gillingham required students to say the letters of the word while spelling. Despite their differences, their combined work influenced many other researchers and educators spawning fifteen commercial programs [2].

Criticism

The most common criticism of the Orton-Gillingham method is its perceived rigidity. Since the set of skills making up the approach are cumulative and follow a systematic set of practices, some view the process as inflexible and lacking creativity. Orton and Gillingham developed their multisensory method of teaching language to train students with dyslexia to think about language as they are using that language. By learning the systematic rules of language, they believed student could apply those rules when reading and writing [3].

Relevance to Childhood Development

Orton and Gillingham believed that students with dyslexia needed to use the visual, auditory, and kinesthetic channels due to their inherent weaknesses in learning languages. Traditional educators rely heavily on the visual channel when teaching students to read and write. Children with dyslexia try to memorize words as whole units, but due to their limitations, they cannot memorize every word. Orton and Gillingham included the auditory and kinesthetic channels in addition to the visual to address this weakness [2,3].

Through the auditory channel students with dyslexia expand their short-term ear memory. By requiring students to retain small pieces of information received through the auditory channel, their short-term ear memory gradually increases as they are slowly required to retain larger pieces of information. The auditory channel is also used to help students with sound discrimination. Students are taught to voice similar sounds by paying attention to the motor movements of their mouths when forming these similar sounds. The kinesthetic channel requires the students to become aware of the motor movements accompanying production of sounds as well as the creation of motor movements to go along with vowel sounds [3].

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Osgood, Charles Egerton

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Definition

Osgood, Charles Egerton: Born November 20, 1916 in Sommerville, Massachusetts. He died September 15, 1991.

Description

Osgood received his PhD in psychology in 1945 from Yale University and was a professor of psychology at the University of Illinois at Champaign-Urbana from 1949–1984. He was also a research professor at the Institute of Communications Research in the University of Illinois College of Communication. He was the director of the Institute of Communications Research from 1957 to 1984. He served as president of the American Psychological Association from 1962 to 1963. At the height of the Cold War, from 1964 to 1971, Osgood served on the Social Science Advisory Board of the Arms Control and Disarmament Agency. Among his many awards were the American Psychological Association's Distinguished Scientific Contribution Award, which he won in 1960 and the American Psychological Association's Kurt Lewin Award (1971).

Relevance to Childhood Development

Osgood was a distinguished social psychologist, who together with his colleagues George Suci and Percy Tannenbaum in 1957 developed the technique in the form of a rating scale to measure the connotative concepts of cultural, or changes in attitudes toward an object or person, known as semantic differential (Osgood, 2009). Osgood is also known for a conciliatory strategy known as GRIT or "graduated and reciprocated initiatives in tension reduction."

In his original writing he said it stood for "graduated and reciprocated initiatives in tension reduction; later he simplified this to gradual reduction in tension. The basic idea is that a disputant can initiate de-escalation by making a small, unilateral (one-sided) concession to the other side, and at the same time, communicating a desire or even an expectation that this gesture will be matched with an equal response from the opponent. If the opponent does respond positively, the first party can make a second concession, and a "peace spiral" is begun. If the first initiative is ignored, Osgood suggests that it be followed by a second–or even a third–attempt. These concessions should be designed to build trust, but should not be terribly costly (materially or strategically), nor should they suggest weakness. However, they should indicate a willingness to transform the conflict to a more co-operative and less adversarial approach (Step-by-Step De-Escalation, 1998).

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Outcome

►Consequences

Outcome Variables

►Variables, in Experimental Developmental Research

Out-of-home Placements

►Foster Care

Outsider Witnesses

►Personal Narratives

Ova

►Ovum

Over-Anxious Disorder

►Generalized Anxiety Disorder

Overcorrection

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Synonyms

Positive practice; Positive punishment; Restitution

Definition

A positive punishment procedure in which, contingent on the problem behavior, a person is required to engage in an effortful activity for a brief period [4].

Description

The procedure of overcorrection was created by Foxx and Azrin [2, 3] to decrease aggressive and disruptive behaviors in institutional settings. Overcorrection involves the repetition of a response, usually as a penalty for having displayed an inappropriate behavior. The effortful response is designed to ensure the individual practices the correct and appropriate behavior that is functionally similar to the inappropriate response they previously emitted. It is important to note that this procedure should be implemented immediately upon the occurrence of the problem behavior [4]. Close temporal contiguity between the inappropriate response and the overcorrection procedure is designed to reduce the future frequency of the problem behavior [1]. Finally, making the procedure one that employs aspects of a punishing stimulus, individuals implementing any overcorrection procedure should ensure that the effortful response is related to the problem behavior, previously emitted.

This procedure is easily implemented with individuals in a learning situation, such as a classroom. While it is important to note that the overcorrection procedure was initially intended to reduce problem behavior (e.g., aggression), research has documented its effectiveness in learning environments for skills such as reading and spelling.

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Overt Aggression

▶Physical Aggression

Overweight

▶Obesity
▶Weight

Overwhelm

▶Identity Diffusion

Ovulation

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Definition

From the Latin word, *ovum* + *ation,* meaning process. It refers to a process within the ovarian and pituitary endocrine function.

Description

Ovulation is the expulsion of an ovum (egg) from an ovary of a mature follicle as part of the menstrual cycle. It typically occurs about the eleventh to the fourteenth day before the next menstrual period. Sometimes a sharp pain in the lower abdomen will occur on the side that is ovulating.

Relevance to Childhood Development

The female infant is born with a large number of incompletely developed ovum (eggs). Once the child reaches puberty the ovum is extruded form the ovary at ovulation. The initiation of ovulation and menarche is triggered by the release of a series of hormones from several glands. The adrenal glands are the first to release its adrenal androgens beginning around the age of six to eight. These adrenal androgens initiate the growth of pubic hair, skin changes and body odor. The second set

of glands, the hypothalamus, the pituitary, and the gonads (ovaries) initiates major body changes. The ovaries begin to secrete *estrogen* which causes the hips to widen, the uterus and breasts to enlarge, and sets in motion the reproduction cycle. Estrogen also stimulates the ovaries to produce ova (eggs).

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Ovum

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Synonyms

Egg; Female gamete; Female germ cell; Oocyte; Ova

Definition

Female reproductive cell.

Description

An egg, or ovum, is the female reproductive cell. An individual ovum is visible to the naked eye and one of the largest single cells in the body. Across most animal species, eggs are bigger than sperm, a distinction termed anisogamy.

Ova are formed in the ovaries during the prenatal period, reaching a total of around seven million. (This early origin means that a woman's offspring begins its development while she is still in the womb of her own mother.) From the fifth month of gestation and continuing throughout the lifespan, ova will deteriorate and decrease in number. At birth, a female baby has around two million eggs and at puberty, an adolescent has around 350,000. A typical woman will release 400 eggs over the course of her reproductive years, from puberty to menopause. Failure to release an ovum is the primary cause of female infertility.

Ova are released during ovulation, occurring around the mid-point of a woman's menstrual cycle. Following menstruation, the pituitary gland releases follicle stimulating hormone (FSH). FSH enables approximately 20 immature eggs housed in Graafian follicles within the ovary to begin development. As these eggs develop, the release of estrogen helps build the uterine lining, termed the endometrium. A thick lining will be necessary for implantation of a fertilized egg. The gradual rise in estrogen triggers the pituitary gland to release luteinizing hormone (LH) rather than FSH. The LH surge causes the most mature ova to be released from its ovarian follicle. This process is called ovulation. The period of time leading to ovulation can vary between women and between cycles. For example, illness, stress, and travel have been linked to a delay in ovulation. In contrast, the period between ovulation and menstruation is an average of 14 days in healthy women and is called the luteal phase.

The mature ovum can come from either ovary and seems to occur in a somewhat random pattern. How the body determines which ovum is most mature is not fully understood. Sometimes a woman releases more than one egg, creating the potential for twins or other multiples. The follicle that housed the ovum is now known as the corpus luteum and releases progesterone, a hormone that contributes to the thickening of the endometrium and will be necessary to maintain a pregnancy. The progesterone also leads to the death and follicle shrinkage of the ripening ova that were not released.

The released egg is caught up in the fimbriae at the end of the fallopian tube. These finger-like appendages sweep the egg into the fallopian tube, also known as an oviduct. Inside the tube, tiny cilia provide a current that propels the egg toward the uterus. The released egg is surrounded by a loose configuration of cells, or cumulus, that protected and fed the egg in its follicle. The ovum has a 24 h window in which fertilization can occur. If the egg is not fertilized, the corpus luteum dies. The resulting decrease in estrogen and progesterone causes menstruation, or the shedding of the endometrium.

For fertilization to occur, the sperm and egg meet in the fallopian tube. The successful sperm must first travel through the thick outer wall of the ovum, called the zona pellucida. The ovum is designed to allow penetration by only one sperm. If polysperming accidentally occurs, the fertilized egg will not develop. In the fast block to polysperming, the outer surface of the egg undergoes a chemical change that prevents other sperm from adhering to the zona pellucida. In the slow block to polysperming, calcium atoms move into the space between the inner egg and the zona, creating a large barrier between the outside of the egg and the genetic material housed within.

The sperm continues its journey into the innermost part of the egg, which contains the mother's genetic material. At fertilization, the egg contains 46 chromosomes,

twice as many as are necessary. Thus, immediately following fertilization, half of the egg's genes are packaged into the polar body, which is ejected from the egg. The remaining genes within each ovum contain an X-chromosome, leaving the sperm to provide the information necessary to determine the offspring's gender. Once inside this acolyte, the sperm loses its tail and dismantles its head to release the father's genetic material. The two sets of 23 chromosomes fuse to become a new call called a zygote. This zygote immediately begins to divide as it travels down the fallopian tube for implantation in the uterus. If implantation occurs outside of the uterus, an entopic pregnancy results.

The human egg's contributions extend beyond half of the genetic material. The developing organism inherits all of its mitochondria from its mother. In addition, early cell division is controlled by messenger RNA and proteins found in the egg. This maternal RNA will deteriorate once the embryonic genes take over the process of cell division for themselves. These factors refute the notion that genetic inheritance is a simple 50/50 contribution by each parent.

Because ova are stored in a woman's body for almost her entire lifespan, they are vulnerable to damage over time. It is possible that environmental toxins and ingested substances have the potential to harm immature ova stored in the ovaries; however, this type of research is difficult to conduct. One strong piece of evidence is that as a woman ages, her likelihood of having an offspring with a chromosomal abnormality, such as cleft palate or Down's syndrome, gradually increases. This outcome could reflect a weakening of eggs over time, or the possibility that women release healthier eggs earlier in life. These findings also highlight the importance of a healthy lifestyle even before a woman contemplates pregnancy.

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Oxazepam

►Serax®

Oxcarbazepine

►Trileptal®

Oximetry

►Near-Infrared Spectroscopy (NIRS)

Oxyhemoglobin

►Hemoglobin

P

Paddling

▶Spanking

Pain Feelings

▶Pain Sensitivity

Pain Sensitivity

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Synonyms

Pain feelings; Pain threshold

Definition

Pain is defined by the International Association for the Study of Pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage" [5]. "Pain threshold" is usually the term used for pain sensitivity in the literature, which is defined as "the least experience of pain which a subject can recognize."

Description

Pain is a subjective experience caused by internal and/or external events [1]. It can be categorized as acute or chronic and can be localized to one part of the body or many parts. Variables affecting pain are complex and include genetic, environmental, and social factors. Diagnosis typically includes assessing pain onset, location, intensity, quality, duration, spatial extent, temporal pattern, physical symptoms, and emotional response [9].

Relevance to Childhood Development

There is significant individual variability of pain sensitivity in children [7]. Children's age, temperament, and developmental level influence their pain sensitivity [8]. Children with a difficult temperament tend to be more pain sensitive [11]. The lifetime prevalence for pain increases with age, and children's understanding of pain and use of pain coping strategies increase with age [4]. Similarly, children's pain intensity and overall distress with medical procedures decreases with age [3]. There do not appear to be sex differences in children's pain sensitivity [6].

Diagnostically, the parent and child are typically interviewed and the child undergoes a clinical examination. If a child lacks the verbal capabilities to communicate pain, then physiological parameters such as heart rate, respiration rate, blood pressure, and electrodermal responses are often assessed [10]. Several pain-specific diagnostic tools have been created for children such as having them rate their pain using facial scales. A child's pain level should continually be monitored as children's physiological and psychological functioning can change quickly.

Children who have early aversive pain experiences can often deter their ability to cope effectively with their pain [2]. Therefore, early intervention is important in order to help children garner positive coping strategies for present and future pain experiences.

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Pain Threshold

►Pain Sensitivity

Pair Bonding

►Sexual Relationships

Paleoanthropology

►Human Evolution

Palliative Care

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Synonyms

Supportive care

Definition

Palliative care is a medical approach that aims to improve quality of life and alleviate suffering of patients and their families. More specifically, the World Health Organization (WHO) defines palliative care as "an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness through the prevention and relief of suffering by means of early intervention and impeccable assessment and treatment of pain and other problems, physical, psychosocial, and spiritual" [12]. Similarly, the National Consensus Project for Quality Palliative Care states that the goal of palliative care is to "prevent and relieve suffering and to support the best possible quality of life for patients and their families, regardless of the stage of the disease or the need for other therapies, in accordance with their values and preferences" [10].

Description

Core Principles of Palliative Care

Palliative care represents a paradigm shift in Western medicine from a nearly exclusive goal of curing disease to a focus on enhancing quality of life, regardless of whether or not a patient's illness can be cured. In 1997, Last Acts, the largest coalition of experts promoting quality end-of-life care in the United States, published *Precepts of Palliative Care*, which outlined five key areas of consideration for delivering high-quality end-of-life care [7]. The five core areas of concern include: respecting patient goals, preferences and choices; providing comprehensive care for patients and their families; acknowledging and addressing caregiver concerns; utilizing the strengths of interdisciplinary resources; and establishing systems and means of support.

Building on Last Act's *Precepts of Palliative Care*, the National Consensus Project for Quality Palliative Care published more detailed clinical practice guidelines and outlined twelve core elements of palliative care [10]. Those elements of care include considerations related to: the patient population served; the timing of palliative care; the need for patient and family-centered care; the comprehensive nature of palliative care; the necessity of an interdisciplinary team approach; attention to relief of suffering; the need for quality communication skills and expertise in care of the dying and the bereaved; continuity of care across settings; equitable access to palliative care; addressing regulatory barriers; and finally, overall quality improvement of palliative care practice.

To elaborate on the National Consensus Project's core elements, the patient population served by palliative care

includes persons of all ages, during any stage of life-altering or life-limiting illness; and in the case of terminal illness, continues in the form of bereavement support for family following the patient's death. Because illness affects the patient as well as those who care about him or her, the patient and family are treated as the unit of care and share in a collaborative decision-making process with the patient's team of medical professionals. Additionally, interdisciplinary palliative care teams comprised of physicians, nurses, pain specialists, and other specially trained care providers minister to the needs of seriously ill medical patients and their families by providing not only integrated and expertly skilled medical care; but also culturally and developmentally sensitive social, emotional, and spiritual support. And finally, palliative care can be provided in a variety of settings such as hospitals, nursing homes, assisted living facilities, outpatient care settings, and a patient's home; and involves collaboration and coordination of care across those settings.

Palliative Care Versus Hospice Care

Although palliative care evolved out of the hospice movement and is often confused with hospice care, the two approaches to medical intervention are not synonymous. Palliative care is always provided for hospice patients, but not all palliative care patients receive hospice care. And although both approaches to patient care aim to ease suffering by managing distressing medical symptoms such as pain and both approaches rely on an interdisciplinary team of care providers, hospice care is provided for terminally ill patients with a life expectancy of 6 months or less and who are no longer undergoing curative treatment. Conversely, as noted above, palliative care can be offered to manage a wide range of medical conditions during any stage of illness and can be provided concomitantly with curative treatment. Additionally, over 80% of hospice care is provided in patients' homes in the United States, whereas, much of palliative care is provided in acute care hospitals and other institutional settings. Because hospice care is provided through Medicare, hospice programs receive federal funding. Conversely, non-hospice palliative care is often hospital-based so it is subject to the budgetary constraints and goals of the hospital in which the program is housed. That explains, in part, why hospice care is more widely available than palliative care [4].

State of Palliative Care in America

In 2003, Last Acts released *Means to a Better End: A Report on Dying in America Today* [8]. The report detailed the status of end-of-life care in all 50 states and the District of Columbia on eight key elements of palliative care. Overall, Last Acts found that America's health care system provides, at best, mediocre palliative care for patients who are seriously ill and/or dying. For example, only about 14% of hospitals at the time of the study offered a recognized palliative care program and only 42% had pain-management programs. Additionally, only one-third of one percent of physicians in the United States was certified in palliative care and only slightly more nurses, 0.4%, were palliative care certified. While the report did not address pediatric palliative care and no similarly comprehensive reports have been published detailing the current state of pediatric palliative care, there is reason to believe that the situation is even less satisfactory for critically ill children.

Relevance to Childhood Development

Every year in the United States 54,000 children die and over 500,000 live with life-threatening or terminal illnesses [1, 6]. Many of those children could potentially benefit from pediatric palliative care. In fact, the WHO states that a multidisciplinary approach to children's palliative care should begin at the time of initial diagnosis and continue throughout the course of illness. Further, palliative care should support children's physical, intellectual, emotional, and spiritual selves and alleviate physical, psychological, and social suffering for both them and their families [12]. Clearly, the WHO's recommendations for pediatric palliative care are consistent with the principles of the current adult-based model of palliative care practiced in the United States and elsewhere. Yet, there are important distinctions and unique challenges associated with providing palliative care for seriously ill children.

Pediatric Palliative Care Challenges

In general, the quality of pediatric palliative care has been found to be lacking [1, 3, 6, 11]. One challenge associated with providing quality palliative care for children is that research into pediatric pain and symptom management lags far behind similar research conducted on adults. Consequently, many chronically ill or dying children experience inadequate assessment and management of their pain and are prescribed inappropriate pain medications that have been tested only on adults [1].

In addition to inadequately managed pain, families of seriously ill children report stressful interpersonal interactions with medical professionals who often receive little if any training related specifically to communicating sensitively with pediatric patients and their families. Significant miscommunication often occurs between medical staff, patients, and families regarding prognostic and treatment-related issues such as presence of pain and other symptoms of disease. In fact, researchers have found that

physicians and families frequently differ in reporting symptoms of illness, such as pain; with families reporting more symptoms than physicians [2, 13].

Further, many medical professionals who are touched personally by the suffering they witness during their interactions with seriously ill children and their loved ones receive little acknowledgement and support for their own pain [5, 9]. Over time, professional caretakers who lack sufficient professional support may disengage from patients and their families as they struggle to maintain their emotional balance and objectivity [5]. This professional disengagement may in part contribute to the seemingly insensitive and unhelpful communications that families report while interacting with medical staff.

Another general hindrance to providing quality pediatric palliative care is that too few physicians and treatment centers offer pediatric palliative care and when care is available it is often provided through pediatric hospice. Unfortunately, insurance restrictions that require hospice patients to forego curative treatment may force parents to choose between curative or palliative medicine for their children. It is heartbreaking for families as well as medical professionals to "give up" on curative treatment for a child, even if the chance for recovery is quite slim. Yet, to continue with curative treatment may result in the child not receiving the highest quality symptom management and emotional support throughout the course of their illness [1].

Overall, disjointed, poorly coordinated, and interpersonally insensitive care impedes informed, shared decision-making between parents and health care providers, and ultimately, the challenges noted above lead to unnecessary pain and suffering of seriously ill children and their families.

Recommendations to Improve Pediatric Palliative Care

In an effort to address some of the aforementioned challenges in pediatric palliative care, both the Initiative for Pediatric Palliative Care and The American Academy of Pediatrics have published policy statements regarding comprehensive palliative care for children which include recommendations to improve the current state of pediatric palliative medicine. The policy statement the of American Academy of Pediatrics recommends that more palliative care and family respite programs should be developed to meet the multifaceted needs of seriously ill children from the time of diagnosis throughout the duration of the child's illness. Also, all pain specialists, pediatricians, family medicine practitioners, and pediatric specialists should learn about and become comfortable with palliative care for children. To accomplish that goal, medical and nursing schools should train professionals in the areas of communication skills, palliative medicine, grief, dying, spiritual dimensions of illness and dying, prognosis and treatment uncertainty, and decisions related to discontinuation of curative treatment. Research for studying pediatric-specific pain medications, treatment protocols, palliative care programming, regulation and reimbursement, and grief and bereavement therapy should also receive increased support. And finally, the policy statement includes the recommendation that the pharmaceutical industry assume more responsibility for providing safe and effective pediatric formulations of medications used to manage symptoms of illness and improved labeling and instructions for use of those medications [1].

Although similar to the recommendations of the American Academy of Pediatrics, the Initiative for Pediatric Palliative Care policy statement outlines patient and family-specific objectives for facilities that provide pediatric palliative care. The IPPC's project objectives include empowering family decision-making and care planning efforts, as well as maximizing, as developmentally appropriate, the child's decision-making capacity. Additionally, children's physical, emotional, and spiritual pain, as well as other distressing symptoms should be reduced. Likewise, the emotional, spiritual, social and practical needs of families, including bereavement support before and after the child's death, should be addressed. And finally, continuity of care across different treatment facilities and care providers needs to be better coordinated to meet the multifaceted needs of the ill child and his or her family [11].

If the recommendations from the National Consensus Project for Quality Palliative Care, the Initiative for Pediatric Palliative Care, and the American Academy of Pediatrics continue to gain more widespread support in the medical community at large, more seriously ill children and adults in America will benefit from palliative care in the future.

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Pals

►Friends
►Friendship

Pangeria

►Werner Syndrome

Parallel Play

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Definition

A form of play during which two children engage in similar play activities in proximity to each other without sharing thoughts, play goals, or engaging in play together.

Description

To understand the parameters of the term parallel play, it is important to understand from where the term is derived. The term parallel play is a form of play or a "stage" of social development which stems from Mildred Parten's [6] landmark study on social interaction. Parten believed that there was a relationship "between the age of children and the degree to which they participated in social groups" [6], p. 264. From a developmental standpoint, she concluded that there is a hierarchy of play states that correlate with age and social maturity.

According to Parten's developmental theory of social interaction and play behavior, the first stage of play that a child will engage in is solitary play behavior. Solitary play behavior is said to be engaged in by very young children in an egocentric fashion to satisfy their own immediate needs, as the child makes no effort to get close to other children. It is believed that solitary play advances into onlooker play where the child observes other children as they are playing, but does not attempt to engage in play with them. This form of play is then believed to evolve into parallel play, where two or more children engage in similar if not identical pursuits with no exchange of feeling or sharing of goals and thoughts. Children engaged in parallel play will observe each other as they partake in similar kinds of play but will never associate. Parallel play is believed to evolve into an associative type of play where children will play alongside each other but continue to function in isolation. When children are engaged in associative play they will speak to each other and share toys while remaining focused on personal needs, wants, and goals, rather than reaching a collaborative goal or outcome of play. Conversely, cooperative play entails playing together to in pursuit of a common goal, and features interaction and the exchange of ideas [11].

Since Parten's study, a significant amount of research has been conducted to determine whether or not there are indeed specific stages of play behavior that emerge as the child ages. Research has also been conducted to determine if play behaviors are reduced or not exhibited at all one a child reaches a particular age or level of social competence. Studies (e.g., [2, 4]) support the position that practitioners "may not be served well in assuming that a preschool child will remain continuously in one type of social interaction for extended periods of time as implied by purely developmental periods of play" (Anderson et al., 2003, p. 19). The high levels of parallel play that continue after the subsequent cooperative stage challenge the concept of an abrupt change between levels as well as the homogeneity of behavior within stages [2, 5, 10].

Smith's [10] longitudinal study disproved Parten's concept of sequential play progression with age. He found that children most often transitioned from solitary play to group play, bypassing the parallel play stage. Unlike Parten, Smith concluded that parallel play is, in essence, an "optional" stage through which children may or may not progress.

Robinson et al. [8] and Anderson [1] state that practitioners should shift the play paradigm from simply to defining states in terms of social maturity or cognitive maturity to studying the play states with respect to the utility of each state in the natural play of young children. Furthermore, defining play states in terms of social and cognitive maturity is not entirely adequate; they support the premise that there is overlap between the behaviors that are exhibited within each hierarchal stage of social play within age groups. Therefore, it can otherwise be stated that these stages do not necessarily occur at a developmental age but may be occur in sequence when presented in novel play situation. For example, a child may be independently playing (engaged in solitary behavior). The child then observes other child that is engaged in an activity that they may be interested in (onlooker behavior), for example, playing with building blocks. If he is interested then he will approach the other child and begin to play next to him, leading to parallel play (manipulating blocks to fit together to make a desired object). The child then will eventually engage in a cooperative play where there is a common purpose or outcome that is desired from their play interaction (building a house out of blocks).

There are several factors that can influence whether a child will progress from solitary play behavior to group or cooperative play. A child may have the cognitive abilities and social competence to engage in group play or cooperative play, but may choose to observe their environment to absorb their surroundings and prepare themselves for cooperative play. Furthermore, a child's personality characteristics, potential developmental delay, and other personal, contextual, and environmental variables should be considered. For example, a child may be introverted, feel uncomfortable engaging in parallel play, and consequently, may not even attempt to engage in any form of interpersonal play behavior. Due to the variables involved in the determination of whether to engage in play interaction, much research has been conducted to explore how the different play states overlap and to discover the purpose and utility of each state.

Anderson [1] mentions that parallel play is a bridge between the other play states identified by Parten. She mentions parallel play is a central link between the other play stages, as evidenced by her research, which found that children continue to engage in periods of parallel play even after attaining the social skills requisite to play cooperatively with peers. This supports the notion that, although a child possesses sufficient cognitive abilities and displays social maturity and knowledge, parallel play still remains a dominant form of play behavior.

The results of Robinson et al. [8] study are consistent with past studies [1, 4, 9, 10] in demonstrating that parallel play is the most prominent play state and most frequently involved in periods of play transition or play shifts. The study also concluded that preschool students continued to evidence high levels of parallel play even after they develop the skills requisite to interacting cooperatively). Moreover, parallel-(aware) play apparently remains prominent in the play episodes of 4-year-old children in child-initiated play settings because of its important dynamic and bidirectional bridging function between other play states [8].

Robinson and looked beyond the cognitive content or social maturity of a play state and analyzed the transitional functions of parallel play. For example, a preschool child who presently enjoys watching interaction of peers during child-initiated play activities should be viewed in transition, and thus practitioners should design interventions to reflect the positive expectations for interactions into higher levels of interactions. This study is consistent with beliefs that parallel play is also viewed as a type of play that serves as a bridge from onlooker play to cooperative play. Moreover, parallel play can be seen as the crossroad between other play states within the natural play episodes children engage in [1]. Consequently, parallel play should not be viewed as a separate stage of child play behavior, but a stage that primes them for further initiated play behaviors such as group and cooperative play. Robinson et al. [8] study also suggests that when it is observed that parallel play is the predominant type of social interaction, a child's social competence should not be a concern. At the same time, parallel-aware play may be used by children as a safe haven to maneuver in and out of social-play situations allowing them to regulate more complex social interactions or planned retreats into solitary activities [3, 7].

In conclusion, parallel play is often referred to as a stage or form of play though which children progress as they develop from solitary players to social players (Baker & Brownlee, 1980). Parallel play is viewed as a bridge between other types of play behavior. Some studies suggest that parallel play is an optional stage, which challenges Parten's developmental theory of play stages. Other researchers suggest that parallel play is often

engaged during a transition between play states. Literature supports that parallel play, along with other forms of social play behavior, should not be viewed as homogeneous stages, but should be examined according to the utility of the context of the play situation. Parallel play has been found to be demonstrated more often than other play behaviors in preschool settings. If this is so, it may be ideal for teachers and educators to promote parallel play behaviors. For example, the introduction of a novel play situation to a child with another child in close proximity may aid them in surpassing solitary and onlooker play behavior, perhaps priming them for more advanced play behaviors and social interactions. Engagement in parallel play has been shown to be an important milestone relative to attainment of more advanced developmental behavior, communication, and social skills.

Relevance to Childhood Development

Analysis of the play behavior of young children has long served to reinforce identification of the developmental skill attainment of preschoolers. Given the inherent limitations of formal psychoeducational evaluation when working with preschool populations, observation of play behavior provides valuable insight into the social and cognitive skills of subjects. Though the previously discussed literature suggests that students may bypass the parallel play stage, frequent observation of play behaviors, including communication, reciprocity, sharing of ideas, sharing of materials, and the degree to which individuals work toward common goals, yields valuable information regarding the developmental stage at which the preschooler functions. Investigation into potential developmental delay may be spurred by careful observations of children who continuously engage in solitary play without proceeding to parallel or cooperative play stages. Likewise, observations of students who play in a dyad or group without extensive verbal communication, reciprocity, or adherence to social norms, when such skills are expected, warrants further investigation. As play is the primary medium through which young children learn and communicate, awareness of developmentally appropriate and inappropriate play behaviors provides insight into potential developmental strengths and weaknesses. Parallel play, though often bypassed by developmentally advanced preschoolers, is yet another piece of the complex developmental presentation of young children.

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Paraplegia

Definition

Paralysis of the legs and lower body, typically caused by spinal injury or disease.

Description

Impairment in motor and/or sensory function of the lower extremities, paraplegia is most often a result of traumatic injury to the spinal cord nervous tissue or the resulting inflammation and swelling that occurs around the point of injury. Paraplegia can also be caused by non-traumatic and congenital factors such as spinal tumors, scoliosis, or spina bifida. The areas of the spinal canal that can be affected in paraplegia are either the thoracic, lumbar, or sacral regions. If the arms are also affected by paralysis, quadriplegia is the proper terminology. Monoplegia refers to only one affected limb. Spinal cord injuries resulting in paraplegia are known as either *complete* or *incomplete*. For a *complete* injury, no level of feeling or function exists for the patient below the point of injury. An *incomplete* injury results in the patient retaining some level or feeling or function below the point of injury.

While some people with paraplegia can walk to a degree, many are dependent on wheelchairs or other supportive measures. Impotence and various degrees of urinary and fecal incontinence are very common in those affected. Many use catheters or a bowel management programs to address these problems. With successful bladder and bowel management, people with paraplegia can prevent accidental urinary or bowel discharges. Due to the decrease or loss of feeling or function in the lower extremities, paraplegia can contribute to a number of medical complications that include pressure sores (decubitus), thrombosis, and pneumonia. Physiotherapy, various assistive technologies and vigilant self-observation and care can aid in helping to prevent future and mitigate existing complications.

Parasomnia

►Night Terrors

Parent Behavior

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Synonyms

Coercion model; Negative reinforcement; Parenting practices

Definition

Parent behavior refers to those practices and actions taken by parents in the course of child rearing that influence child behavior and relate either positively or negatively to child outcomes.

Description

That the behavior of parents, specifically, and overall family functioning, more generally, affects several aspects of child development is a long held and repeatedly documented finding in child psychology. That is, the ways in which parents interact with their children as well as oversee and manage their behavior has long been understood to influence children's cognitive, social, emotional, and behavioral development. Although many aspects of parenting can be referred to as "parent behavior", those issues related to the broad distinction between coercive and noncoercive parenting are characterized as such based on observable behavior and provide concrete examples of the differing ways in which overt behavior are displayed. As the more broad-based topic of Patterson's Coercion model [5, 6] is more fully discussed in this volume, it is the goal of the current entry to only outline those overt parent behaviors associated with coercive vs. noncoercive parenting not discuss the model in specific terms.

Regarding those parent behaviors associated with coercive parent–child interactions, a series of repeatedly occurring negatively reinforced exchanges between parents and children influence both parties and promote change over time. For example, consider the common parental behavior of delivering instructions to children. Assuming coercive interactions, following the initial instruction children may simply ignore the request which causes the parent to in some way escalate their behavior (e.g., repeating the instruction or raising their voice). As a result of this parental escalation the child may then increase their aversive responding by refusing to complete the instructed task or otherwise protesting the instruction. As such, the parent may withdraw the instruction rather than following through and demanding completion thereby reinforcing their child's aversive, escape behavior. Although this cycle of events is well documented over three decades of research, the parent behaviors specific to such exchanges are currently outlined.

Operating within this negative reinforcement cycle are parent behaviors that serve to increase the likelihood that children will fail to complete instructed tasks and may lead to childhood antisocial behavior [1]. Specifically, the act of instruction withdrawal serves to teach the child that they "win" the interaction with their parents and reinforces such behaviors in the future. In addition, over time the parents begin to more frequently rely on ineffective parenting practices in an attempt to control an increasingly uncontrollable child, therefore perpetuating this pattern of coercive behavior [8]. Combined with this increasing reliance on negative child-management practices, is a lack of positive reinforcement for appropriate child behaviors. Rather than recognize and attend to appropriate child behavior, parents provide an abundance of attention for negative behaviors to the detriment of positive occurrences.

Coercive parenting behaviors such as these have been linked to several poor childhood behavioral outcomes across differing groups of children. For example, increased negative parenting behaviors are predictive of young

children's increased negative peer play interactions [2] and are related to poor social skills, academic deficits, and increased antisocial behavior of older boys [7]. Although such findings may indicate that the negative effects of specific parenting behaviors are not the same for all children, there is no doubt that deleterious childhood effects exist. In sum, coercive parental interactions which emphasize negative parenting behaviors and deemphasize positive parenting behaviors evidence a poor managerial style which may increase their children's negative adaptive behaviors and teach them how not to behave, rather than how to behave.

Contrasted to those inconsistent parental behaviors which are the hallmarks of coercive parenting are those behaviors consistent with noncoercive interactions. Differentially referred to as parental warmth [4] or support or engagement [3] among other defining labels, noncoercive parenting reflects an adoption and display of attentive and supportive behaviors. Following from the previous example involving parental instruction giving, those parents behaving in a warm or supportive manner are likely to issue clear instructions that effectively communicate the task(s) to be completed and provide positive reinforcement for appropriate instruction following. In addition, supportive parents may be more likely to provide adequate explanation regarding why appropriate child behavior is expected and what consequences will follow should it not be displayed.

Related to those specific parental behaviors displayed by noncoercive parents during a hypothetical instruction giving scenario are the more general caring, supportive behaviors displayed by such parents throughout the course of daily life. Other such characteristics may include a positive or generally supportive parental affect [8] or disposition and behaviors meant to convey a sense of love and caring on the part of the parent [3]. Such parents are more likely to respond in a timely manner to their children's needs and are both aware and considerate of their children's feelings. Rather than engaging in a series of negatively reinforced aversive interactions which only serve to fuel greater levels of child and parent hostility towards the other, supportive parents provide children the much needed guidance and warmth on which healthy peer and future adult relationships are based.

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Parent Intervention

►Parent Management Training

Parent Management Training

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Synonyms

Behavior disorders; Parent intervention; Parent training; Psychosocial treatments

Definition

Parent management training (PMT) refers to an intervention program that trains parents to effectively manage their children's behavioral problems [1]. It has been identified by the American Psychological Association (APA) Division 12 as a well-established, empirically-supported treatment method. PMT can be provided in home or school contexts and can be structured in groups or with individuals depending on the severity of the presenting problem. PMT is typically implemented with parents of children who display disruptive behavior problems.

Description

PMT is a traditional behavioral parent training approach that utilizes the parent as the main change agent to remediate the child's externalizing behaviors. Externalizing behaviors in children constitute a variety of "acting out" behaviors and can range from minor oppositional

behaviors including yelling, defiance and temper tantrums to more severe antisocial behaviors including aggressiveness, stealing, and physical destructiveness [4]. These behaviors are often referred to as conduct problems or oppositional/defiant behaviors.

PMT aims to promote positive parenting through social learning techniques. Specifically, it evolved from two main areas of research: maladaptive parenting and social learning theories. Extensive research has shown that maladaptive parenting styles are significantly related to the increased likelihood of conduct problem behaviors in children. Maladaptive parenting styles that are closely associated with the development of conduct problem behaviors in children include harsh and inconsistent discipline, low supervision and involvement, negative maternal affect, and observed maternal critical statements. Second, social learning techniques are critical components of PMT; social learning relies on operant conditioning principles to promote positive parent-child interactions and decrease oppositional and conduct problem behaviors. Specifically, these techniques include consistent reinforcement of positive, non-deviant behavior, while ignoring or punishing problematic behaviors. PMT combines these two areas of knowledge by working directly with parents to teach them techniques to handle misbehavior while increasing positive parenting practices, including warmth and consistent discipline that have been associated with positive child outcomes.

PMT sessions can vary depending on the severity of the problem. Typically, PMT sessions last 1.5–2 hours per week over the course of 15 sessions. During PMT sessions, the therapist works closely with the parent in helping him or her understand underlying concepts of the training, including positive reinforcement and punishment techniques. Positive reinforcement consists of providing the child with a specific reinforcer (e.g., praise, rewards, points) contingent on observed positive behavior. Punishment techniques include removal of reinforcement contingent on disruptive behavior (e.g., removal of a privilege immediately following aggressive behavior in the child).

Central to PMT is reinforcement of children's positive, prosocial behavior. The therapist teaches the parent how to recognize, define, observe and record problem behavior in their child; this allows the parent to identify problem behaviors in the home. Parents learn how to apply techniques contingent on their child's behavior, and how to apply consequences on a consistent basis. The therapist models specific techniques for parents and coaches parents through practice implementation sessions. After a sufficient amount of practice, the parent should be able to implement the procedures with the child in the home setting. Key components of the sessions involve the practice and maintenance of learned skills so the parent can become efficient in implementation and can utilize the skills to handle future misbehavior. The therapist remains in close contact with the parent; enabling the parent to reinforce previously learned skills, measure the parents' compliance in implementing techniques, and answer any additional questions the parent may have. Finally, the therapist can problem-solve and modify existing plans when techniques do not seem to improve the child's behavior.

Relevance to Childhood Development

The emergence of externalizing behaviors may be observed early in development and may be reported by parents, family members or day care providers. Although toddlers and preschoolers may not meet the criteria for specific externalizing behavior disorders, they may begin to develop presenting symptoms at an early age. When presenting symptoms can be identified early, early intervention may reduce symptoms from escalating or presenting later in development. Typical developmental patterns may mimic some of the less extreme behaviors seen in young children with conduct problems. Such behaviors as defiance, signs of aggression toward siblings, or tantrums may occur as a result for the child's attempt to establish autonomy or set boundaries [2]. These behaviors can evolve into externalizing behavior disorders if they continue past the time where they are considered developmentally appropriate or if they worsen over time and start to interfere with daily activities (e.g., sharing, playing with peers, parental relationships).

When early behavioral difficulties are frequent and displayed at intense levels within the context of familial stress, there is a greater likelihood that the child will continue to have problems as he or she progresses developmentally [3]. At least 50% of preschool children who displayed moderate to severe conduct problems continued to show some behavioral disturbances at school age; 67% of these students displaying continued behavior problems met the diagnostic criteria for Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD) at age 9 [5, 6]. A significant number of these children who later become clinically antisocial or criminal delinquents displayed early symptoms in their preschool years. How parents respond to their child's behavior can influence the developmental trajectory of early behavioral symptoms.

Extensive research has shown that PMT can decrease aggressive, oppositional and antisocial behaviors by promoting positive parent-child interactions. Research has demonstrated long-term effects of PMT on child outcomes and parent behavior. PMT can be utilized when early symptoms arise to prevent the emergence of more severe behavior problems later in development.

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Suggested Readings

Kazdin, A. (2005). *Parent management training: treatment for oppositional, aggressive, and antisocial behavior in children and adolescents*. Oxford: Oxford Press.

Suggested Resources

Center for effective parenting. www.parenting-ed.org

The incredible years: Example parent management training program. www.incredibleyears.com

American academy of child and adolescent psychiatry. http://www.aacap.org/

Companion website for parent management training: treatment for oppositional, aggressive, and antisocial behavior in children and adolescents. http://www.oup.com/us/companion.websites/0195154290/resources/?view=usa

Parent Report Measures

►Behavior Assessment System for Children: Second Edition (BASC-2)

Parent Training

►Parent Management Training
►Timeouts

Parental Rights Termination

►Foster Care

Parent-Child Relationships

►Bonding
►Relationships

Parenting Practices

►Parent Behavior

Parenting Styles

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Synonyms

Baumrind's parenting styles; Child-rearing; Child-rearing practices; Discipline; Family structure

Definition

Parenting styles refer to the typical ways parents think, feel and behave in terms of child-rearing.

Description

Parenting takes place in every home with children throughout the world as parents try to socialize their children. Parents differ in the characteristic ways they rear or control their children. Some are more involved than others. Some are more responsive to their children than others. Some have many rules and directives to be followed while others take a laissez-faire approach. Some are loving and kind while others are harsh and

unaffectionate. Parenting styles refer to the typical ways parents think, feel and behave in terms of child-rearing [1, 2]. This means that parenting styles reflect the prevailing parental attitude to the child and this attitude is expressed to the child via the emotional climate of the home. Parenting styles guide parenting practices such as curfews or spanking, but they are not always the same. Parenting styles are the context within which the socialization of the child within a family occurs [3].

The most widely known categories of parenting styles are based on the work of Diana Baumrind [1, 2]. Most of her research has focused on two dimensions of parenting style: authority and affection. Authority or demandingness refers to the degree to which parents try to control their children's behavior by setting rational standards for behavior. Affection or responsiveness refers to the amount and way love is expressed to the child and acceptance of the child's points of view. Based on these dimensions, Baumrind identified three categories of parenting styles. According to Baumrind's work, the optimal parent is both demanding and affectionate and displays an authoritative style. This leads to socially competent and academically competent children. Less desirable in terms of child outcomes are the authoritarian style which can include parents who are more directive and those who are more intrusive, and the permissive parenting style which can include indulgent, nondirective parents and democratic parents.

Using the two dimensions of control and affection suggests a fourth category of parenting style: parents who are low in both authority and warmth. Baumrind initially did not find sufficient numbers of these parents to study as she was concerned with normal patterns of parenting, but others beginning with Maccoby and Martin have described these parents as uninvolved or neglectful and in the extreme might be termed abusive. Children reared via this parenting style have the worst outcomes [3–5].

Most parents do not display only one parenting style. While they may predominantly fall in one of the categories of parenting styles, it is more common that parents borrow from different styles depending on the circumstances, including the age and gender of the child as well as the behavioral issue involved [4]. Parenting style is a characteristic of the parent rather than of the parent–child relationship. In this regard, parents are the most influential component, however children do influence the parent and the relationship is bi-directional. An authoritative parent will ultimately benefit from raising a more compliant child; the child is more likely to comply in the future because the parent is reasonable [5]. An authoritarian parent may increase the likelihood that the adolescent will not listen, thus increasing the parental demands and decreasing compliance over time. A permissively reared child may get into trouble outside the home; the problems escalate as the parent remains uninvolved.

The research then generally favors the authoritative parenting style but the evidence comes primarily from middle class, Caucasian, North American families [3, 5]. The ideal style may be different in other cultures although support for this model has been found in cross-cultural research in Asian families. However in black North American families the authoritarian style has been found to be very effective. More research is needed to determine the effects of social context, culture and specific parenting practices.

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Parietal Lobe

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Definition

The Parietal lobes represent the upper lateral lobes of the cortex that is bordered at different points by all three of the other lobes and is functionally linked to somatosensory functioning, visuospatial-linked processes, and areas of academic functioning.

Description

The Parietal lobes are the upper central lobes of the cerebral hemispheres that are separated from the Frontal Lobes by the Central Sulcus, the Temporal Lobes by the Sylvian Fissure and the Occipital Lobes by the Parietal-Occipital Fissure [4]. Functionally, the Parietal lobes are linked to somatosensory functioning, visuospatial

processes, and aspects of academic functioning. First, in terms of its' link to somatosensory functioning, this is related to the fact that the primary somatosensory cortex is localized to the postcentral gyrus of the anterior portion of the parietal lobes. The essential function of the primary somatosensory cortex is processing peripheral sensation of the contralateral (i.e., opposite) side [2]. This ranges from more basic functions such as simple detection of tactile stimulation to high-order processes such as object identification based on tactile cues alone, although the more higher-order the process the greater the involvement of other regions and areas. See *Somatic Sensory Cortex* for more details.

In terms of their involvement in visuospatial processes, the Parietal lobes play a vital role spatial orientation, which allows us to determine where in space we or items are in relationship to other things [1]. This is an essential component of aspects of spatial rotations (flipping and/or rotating items cognitively), hemi-attention (i.e., attention to different sides of the body and environment), and constructional tasks. Finally, the Parietal lobes have also been linked to aspects of academic performance, specifically mathematics and writing. While this functional tie may be made with the Parietal lobes broadly, a narrower link is between these functions and the Angular gyrus, which originates in the Parietal lobes. The influence the angular gyrus demonstrates along these lines is largely related to it representing a cortical association area that provides cross-modal integration of visual, tactile, and verbal information [5]. Essentially it is a convergence point of the Parietal, Temporal, and Occipital lobes, which together correspond with modulation of the aforementioned academic domains. This link has been best exemplified by lesion analysis that has demonstrated that lesions in the dominant hemisphere (i.e., that hemisphere in which language is predominantly housed) that impact the angular gyrus may result in alexia (i.e., impairment in reading) and agraphia (i.e., impairment in writing) [3]. See *Angular Gyrus* for more details.

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Parkinson's Disease

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Definition

Parkinson's disease (PD) is a chronic and progressive neurodegenerative disorder that is primarily characterized by motor dysfunction.

Description

Idiopathic Parkinson's disease (PD) is a chronic and progressive neurodegenerative disorder that affects around 1/1,000 individuals [36]. The pathology of this disorder is focused on the substantia nigra (SN) and nigrostriatal tract, resulting in the motor symptoms that characterize this disorder [5]. Onset occurs most commonly after the age of 50 and its incidence increases with advancing age [11]. While PD is primarily characterized by motor dysfunction, signs of early cognitive disturbances are also a feature of the disease process [6, 28, 34]. The end consequence of this cognitive decline may be frank dementia. Indeed, research indicates that a substantial number of individuals with PD (~40%) will progress to a diagnosis of dementia (see [12] for review).

Motor Symptoms

Tremor, rigidity, bradykinesia and postural instability are considered to be the cardinal features of PD. However, presenting motor symptoms vary considerably for each individual and may have particular importance for the identification of PD subtypes (see Table 1 for common motor features associated with PD). Initial diagnosis is based on the evaluation of presenting physical symptoms and their history but a definitive diagnosis of PD can only

Parkinson's Disease. Table 1 Common motor symptoms associated with Parkinson's disease [19]

Tremor	Sialorrhea (excessive salivation)
Rigidity	Respiratory difficulties
Bradykinesia	Festination
Postural instability	Freezing
Masked facies	Micrographia
Hypophonia	Decreased blink rate
Dysphagia	Levodopa induced dyskinesias

be made on the basis of autopsy evidence which includes the degeneration and loss of pigmented cells in substantia nigra pars compacta (SNc) and the presence of Lewy bodies [21]. Clinical symptoms of PD only manifest when nigrostriatal dopamine depletion is at around 80%, and approximately 60% of the dopaminergic neurons in SNc have been lost [13].

A number of neurodegenerative diseases can be mistaken for PD. These are generally referred to as Parkinson plus syndromes and include: progressive supranuclear palsy, cortical-basal degeneration, multiple system atrophy, dementia with Lewy body and vascular Parkinsonism. However, research indicates that the degree of clinical diagnostic accuracy is higher when more stringent criteria are applied such as the United Kingdom Parkinson's disease Society Brain Bank Diagnostic Criteria for Parkinson's disease [19].

Description of Characteristic Motor Symptoms

Tremor and bradykinesia are the two most common initial symptoms [37]. Tremors occur predominantly at rest, with a frequency of 4–6 Hz, and diminish on action [19]. However, not all patients with PD manifest a resting tremor as the presenting symptom, and 15% will never manifest a tremor during the entire course of the disease [19, 21]. The etiology of the resting tremor remains unknown [9]. Patients with PD may also develop a postural tremor, 5–8 Hz, that occurs during activity [19].

Bradykinesia is defined as a slowness of movement. It is often used interchangeably with hypokinesia, which refers to slowed movements, but with the addition that the movements performed are smaller than intended (e.g., micrographia), and with akinesia, referring to a lack of spontaneous movement (e.g., lack of spontaneous arm swing when walking) [3]. Bradykinesia is thought to result from deficient output from the Basal Ganglia to the cortex [3].

Rigidity, also a prominent feature of PD, refers to the increased tone or stiffness in the muscles that are resistant to passive movement, and may result in a subjective feeling of tightness and pain in the muscles. The fourth cardinal feature is postural instability, a tendency to lose balance with propulsion and retropulsion. Postural instability is more common in the later stages of the disease and is generally accompanied by festination (i.e., short shuffling steps).

The cause of postural instability is not known, but has been attributed to the degeneration of the globus pallidum, reduced or absent vestibular responses, or abnormal postural reflexes [19].

As stated at the beginning of this section, individuals vary greatly in their presentation of motor symptoms and it has been suggested that differences in motor presentation may be indicative of differences in disease progression [21]. Indeed, two recent studies have suggested that different subgroups of patients with PD can be identified by a combination of motor and cognitive symptoms [14, 26].

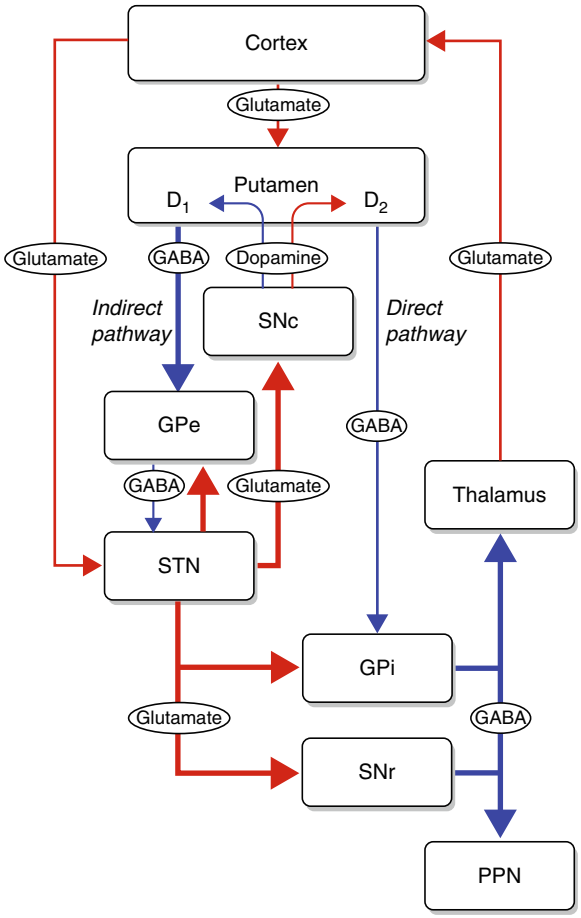
Cause of Deficits Associated with Parkinson's Disease

Dysfunction of the basal ganglia system is considered key to the motor, cognitive, and psychiatric deficits associated with Parkinson's disease. The basal ganglia are a group of interconnected subcortical structures in the forebrain and include the caudate nucleus, putamen (these two structures are often referred to as the striatum), globus pallidus (globus pallidus and putamen are sometimes referred to as the lenticular nucleus) and the nucleus accumbens [32]. Many authorities also include the substantia nigra, subthalamic nucleus and the amygdala as structures of the basal ganglia [15, 16, 32, 38].

Parkinson's disease is characterized by the depletion of dopamine due to the degeneration of dopaminergic neurons in the Substantia Nigra (SN) (see Fig. 1), and not surprisingly, the dopamine theory is used to account for the deficits reported with this disorder. Motor deficits are characteristic of PD and the dopamine theory explains this in the following way. It is suggested that the direct and indirect pathways, described earlier, operate on the GPi/SNr. The nigrostriatal denervation leads to over-activity of GPi/SNr [25, 38], with an overall inhibitory effect on the thalamus. This in turn leads to an under-activation of the motor cortex and a reduction or absence of movement as seen by the presence of bradykinesia or akinesia associated with PD [25, 31].

The cell bodies of the nigrostriatal dopaminergic neurons are located in the SNc and project primarily to the putamen, but also to the caudate. Research suggests that Parkinson's disease first affects the posterior putamen, then the anterior putamen and the caudate nucleus [7, 20]. This explains why motor symptoms are often the first signs for people with PD [29]. In contrast, dopamine depletion associated with Huntington's disease begins in the anterior caudate and initial problems are usually cognitive in nature [22, 23].

Interestingly, it has been reported that neuronal loss in the SN in people with PD is not evenly distributed. Neurons in the ventrolateral part of the SN degenerate to a greater extent than those in the medial part. This has important implications in terms of the projections from the SN. Research indicates that different types of



Parkinson's Disease. Fig. 1 A schematic representation of the basal ganglia using the motor circuit, for a patient with Parkinson's disease.

PD, (e.g., akinetic-rigid type and tremor-dominate type) show different patterns of neuronal loss in the SN, and it is has been suggested that these different patterns of neuronal loss could explain the heterogeneity of motor symptoms [10, 33].

Consistent with the dopamine theory, most medications used to control the motor symptoms that characterize PD are based on dopamine replacement therapy. These treatments, at least in the early stages of the disease, ameliorate many of the motor symptoms, with symptoms only re-appearing at the "end of dose." Further, surgical procedures based on the dopamine model have been reported to be highly successful for some patients.

A depletion of nigrostriatal dopaminergic neurons in the SNc is represented by the thin lines. The direct and indirect pathways operate on the GPi/SNr. The nigrostriatal denervation leads to over-activity of GPi/SNr with an overall inhibitory effect on the thalamus leading to an under-activation of the motor cortex (Adapted from [25, 31]).

Parkinson's Disease with Dementia

Dementia is arguably the most severe psychiatric outcome associated with PD, representing multiple cognitive and / or behavioral deficits which result in a significant decline in the person's level of social or occupational functioning (using DSM-IV criteria). The reported prevalence for Parkinson's disease with dementia (PDD) varies greatly, largely due to methodological inconsistencies i.e., the way in which dementia is defined [2, 4, 30]. However, it is generally accepted that prevalence rates of dementia among people with PD are much higher than in the general population i.e., approximately four to five times that of elderly individuals without PD [1, 12, 17, 27]. While the exact neurophysiological basis of PDD remains undetermined, progression to dementia has been found to be more likely in patients with longer disease duration, of older age, and with more severe motor symptoms [4, 8, 18, 27].

Research indicates that cognitive deficits characteristic of PDD differ from those associated with Alzheimer's disease (AD) [27, 35]. For example, while the initial symptom and essential characteristic of AD is impaired episodic memory, early executive function and visuospatial deficits are characteristic of PDD, with only mild impairments in memory retrieval being evident [24, 27].

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Paroxetine (Generic)

▶Paxil (Paroxetine)

Partial Dopamine Agonist

▶Abilify

Partial Fetal Alcohol Syndrome (PFAS)

►Fetal Alcohol Effects

Partiality

►Prejudice

Pass

►Purging

Pass Theory

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In his seminal works *Human Brain and Psychological Processes* [2], *The Working Brain* [3], and *Higher Cortical Functions of Man* [4], A. R Luria described the brain as a multidimensional system comprised of parts that make specific contributions to a larger interacting whole network. Luria's research on the brain provided the basis for the neuropsychological processing theory of intelligence called PASS, initially described by [1]. The four PASS processes represent a fusion of cognitive and neuropsychological constructs such as executive functioning (Planning and Attention), selective, sustain and shifting, attention (Attention), visual-spatial processing of information into a coherent whole (Simultaneous), and serial processing of information (Successive). These four neuropsychologically defined abilities form the basis of this new theory of intelligence.

The first ability is Planning. This is a frontal lobe function, especially the prefrontal cortex, and one of the prominent abilities that differentiate humans from other primates. Planning plays a central role in forming goals and objectives and then in devising plans of action required to attain these goals. Planning helps us achieve goals through the development and use of strategies to accomplish tasks for which a solution is required. Planning also allows for the generation of solutions, discriminating use of knowledge and skills, as well as control of Attention, Simultaneous, and Successive processes. The second ability is Attention which is associated with Luria's first functional unit (the reticular formation) which allows an individual to selectively focus cognitive activity toward a stimulus over a period of time without being distracted by other competing stimuli. The longer attention is needed, the more difficult keeping focus on a task will become. Intentions and goals (e.g., Planning process) are responsible for control of Attention, which is why these two processes are strongly related. *Simultaneous* is the third ability, needed for organizing information into groups to form a whole allowing recognition of patterns typical in visual-spatial tests. However, Simultaneous processing is not limited to visual content, as demonstrated by the important role it plays in the grammatical components of language and comprehension of word relationships, prepositions, and inflections. Finally, *Successive* ability is needed when working with information arranged in specific series. This includes serial organization of physical movement as well as articulation of sounds, especially sounds in sequence and early reading. The PASS theory was used as the foundation of the Cognitive Assessment System [5] (see ►CAS). This test of intelligence was explicitly developed to operationalize the PASS theory and therefore it is unique among IQ tests.

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Path Analysis

►Structural Equation Modeling

Pathologic Emotionality

►Emotional Lability

Patois

►Dialect

Patterns of Parental Behaviors

►Child Rearing Practices

Pavlov, Ivan Petrovich

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Life Dates

1849–1936

Introduction

Pavlov was the best known Russian physiologist of his era and one of the most significant experimental psychologists. His early research on the digestive system led to the discovery of conditioned reflexes which has widely influenced neurology and psychology.

Educational Information

Pavlov was Russian. He attended seminary and planned to become a priest like his father. In his teenage years, he read the works of Darwin and Sechenov and became interested in science. Next, he attended the University of St. Petersburg and earned a degree in Natural Sciences. Then he earned a medical doctor degree at the Military Medical Academy. However, he did not plan to become a doctor. He wanted the training to give him the opportunity to advance in physiology [2].

Research

Pavlov researched the digestive system and conditioned reflexes. He used dogs for his research and tried to study them in as normal a state as possible. He developed a stomach pouch to study digestion in part of the stomach, so the dog could fully recover. He discovered before food is put in the mouth there are gastric and pancreatic secretions that happen because of some stimuli previously associated with eating. This led to his work on the conditioned reflexes. He tried to figure out how the brain controls the adaptive behaviors.

This was explained by the methodology of classical or Pavlovian conditioning. Pavlov's dogs were given meat powder. Before it was given, they would salivate when something usually associated with the meat handler appeared. Pavlov then paired the meat power with the ringing of a bell. After a few trials of both meat and the ringing bell being presented at the same time, the dogs would salivate. Even when the food was taken away, the dogs would salivate when the bell was rung. Pavlov showed the stimulus-response patterns.

The meat powder is the unconditioned stimulus and the dog's salivation is the unconditioned response. The ringing bell is the neutral stimulus. However, when the dog begins associating the bell with food, the ringing becomes the conditioned stimulus. The salivation from the dog is the conditioned response. The conditioned response will decrease if the conditioned stimulus continues to be given without the unconditioned stimulus. This is called extinction. His process was readily applicable to humans. It is used to treat phobias in a process called systematic desensitization.

Accomplishment

Pavlov became professor of pharmacology (then physiology) at the Military Medical Academy and later advanced to become the head. One year later, he helped organize the physiology department at the Institute of Experimental Medicine where he became chair in 1895. While there, he published his research *The Work of the Digestive Glands* for which he was awarded the Nobel Prize in Physiology or Medicine 1904. Pavlov continued there for 45 years until his death. Interestingly, Pavlov was the first physiologist as well as the first Russian scientist to be awarded this honor [1].

Contributions

Pavlov's work on the digestive system led to the establishing of the science of neuroendocrinology. He looked at the effect of signal on brain processing to learn more about brain function. His work on conditioned reflex showed how the brain controlled adaptive behavior. This classical conditioning, or Pavlovian conditioning, was instrumental to the development of the behaviorist movement led by John B. Watson. Furthermore, Pavlov's contributions had worldwide impact on learning, memory, psychology, and neuroscience [3].

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Pavlovian or Respondent Conditioning

►Classical Conditioning

Pavor Nocturnis

►Night Terrors

Paxil (Paroxetine)

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Synonyms

Antidepressants; Paroxetine (generic); Selective serotonin-reuptake inhibitor (SSRI)

Definition

Paxil® is one of the newest types of antidepressant medications. Paxil is FDA approved for treatment of major depressive disorder (MDD) and panic disorder; however, it has been shown to be an effective treatment for obsessive-compulsive disorder (OCD), bulimia, posttraumatic stress disorder, and other anxiety disorders.

Description

Paxil is a selective serotonin-reuptake inhibitor (SSRI). SSRIs have been available for treatment of depression in the United States since 1988 and have become the medications of choice for treating many psychiatric conditions. Other SSRIs include Prozac, Zoloft, Celexa, and Luvox. Paxil is one of the most potent SSRIs and has a half-life of approximately 14 h. A clinical response may take up to 6–8 weeks; however, most individuals respond within 2–3 weeks. Side effects are generally mild with most SSRIs, including Paxil. These may include upset stomach, diarrhea, insomnia or tiredness, and sexual dysfunction. A typical dose of Paxil is 20–60 mg/day. To avoid withdrawal symptoms, treatment is typically tapered and not discontinued abruptly.

Relevance to Childhood Development

Paxil has been shown effective in treating major depressive disorder and panic disorders in children and adolescents and is becoming the primary treatment for non-OCD pediatric anxiety disorders. This is partly due to the minimal side effects and flexibility in dosage and treatment. Paxil is available in liquid preparations, which may be helpful for younger children.

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PC Games

►Video Games

Peabody Picture Vocabulary Test –Third Edition (PPVT-III)

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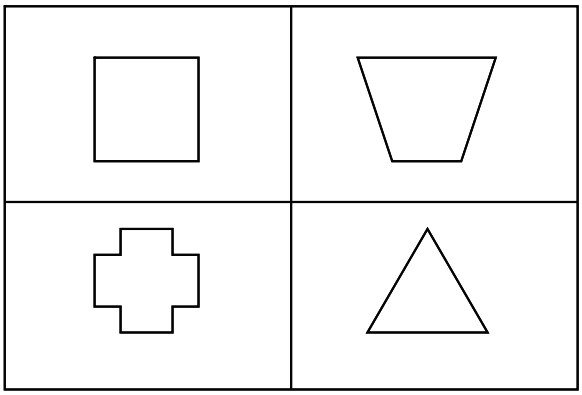
Definition

The PPVT-III is a test of auditory comprehension and is a measure of English hearing vocabulary.

Description

The PPVT-III is one of the most commonly used standardized tests that was first published in 1959 [1] revised in 1981 [2] and again in 1997 [3] with updated norms and illustrations. The PPVT-III is an individually administered, norm-reference, test of hearing vocabulary and designed for individuals ages 2–6 through to 90+ who have reasonable sight and hearing [3]. The PPVT contains four practice items and 204 test items. Items are arranged in 17 sets of 12 in order of increasing difficulty. Each test item each contains four simple black and white illustrations. The examiner says a word and the examinee's task is to select the corresponding picture that they considered best illustrates the meaning of the stimulus word presented [3]. For example, using the figure below, the examinee could be asked to select the picture that would best illustrate the meaning of the word square. A correct answer would require the participant to indicate the first illustration.



The PPVT-III is a relatively easily administered test that has a number of advantages. Firstly, individuals are administered only those items within or close to their critical range (critical range refers to items that provide maximum discrimination for individuals of similar ability). In this way each patient must answer only about 35–45 items of suitable difficulty. Items that are far too easy or hard are not administered and testing takes about 10–15 min [3].

The PPVT-III has two parallel forms, III-A and III-B, each test form has a simple scoring key which enables objective scoring to be completed while administering the test. Total raw score is calculated as the number of correct responses over the critical range. Raw scores can be converted into standard scores with a mean of 100 and a standard deviation of 15 and also age equivalents (previously called mental age), stanines and percentiles.

Relevance to Childhood Development

There are a number of situations where a child's intellectual ability may need to be assessed, e.g., school failure or underachievement. However, a standard IQ test is often not an appropriate or accurate method of identifying the level of intellectual ability. For example, children with hearing impairments may perform very poorly on a standard IQ test but be of average or above average intelligence. Administration of the PPVT-III requires no reading from the patient and no oral or written responses are required. This allows the test to be used with non readers, individuals with written language problems, and hearing impairments. As only a yes/no signal to the examiners pointing is needed to respond to the test items the test may also be used with patients who have speech impairments. For example individuals' with aphasia, stuttering, also the use of eye gaze as a response has been found to be acceptable response making the tests useful for children with severe motor disabilities.

While the PPVT-III is not a comprehensive test of general intelligence, as it measures only one important facet of general intelligence, it can be used as a screen for under achievement. The PPVT-III can be thought of as an achievement test for English vocabulary acquisition and success vocabulary has been found to be one of the best predictors of school performance. However, some caution should be exercised when using the test with different cultural and linguistic background [4].

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Pediatric Obstructive Sleep Apnea

►Sleep Apnea

Pediatric OCD

►Obsessive–Compulsive Disorder

Peer Affiliation

►Peer Group

Peer Group

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Synonyms

Clique; Peer affiliation; Peer relations; Peer relationships; Social group

Definition

A peer group is a group of individuals who are approximately the same age, formed from common interests and affective bonds.

Description

Peer groups consist of more than two individuals of similar age, social status, and interest. Peer groups are not only comprised of individuals who are friends. It is possible to have a peer group where some members are friends and others are just tolerated. Every child on a basketball team is in the same peer group, but they are not all necessarily friends. Peer group membership can be based on sociometric status, friendship, and other social categories (e.g., "brains" or "jocks"). Peer groups are based on the interests of the members, whether that interest is sports, academia, or music. It is also possible for an individual to belong to two peer groups simultaneously and it is typical for individuals to change groups radically over time. Some peer groups are centered on prosocial characteristics (e.g., high academic performance, playing sports, and volunteer work) while others are more concerned with deviant behavior (e.g., drug and alcohol use, vandalism, and skipping school).

Several developmental psychologists, such as Sullivan and Piaget, have argued that peer relationships provide a milieu for development in cognitive, social, and emotional areas. Peer interactions provide experience with socializing skills, such as fairness, reciprocity, teamwork, and intimacy, and help mature and enhance children's reasoning abilities and concern for others. Children's peer groups help foster and create their adult personalities. Peer influence can be referred to as socialization. In American culture as children get older they spend more time with their peers, so will initial socialization begins with the parents peer groups contribute a great deal to learning societal norms and standards. Children are not only influenced by their peer groups they also help influence the decision of the group. Values and norms that are initially learned from their parents are often applied to the group.

Acceptance by peers is seemingly important particularly by young adolescents. Rejection from a peer group can be just as influential as acceptance. Adolescents who are rejected by their peers are more likely to display negative consequences: delinquency, drop out of school, or psychopathology. Social rejection is the group responding to an individual. Peer rejection is almost a self fulfilling prophecy because once adolescents decide to reject an individual they begin to treat him or her differently and this treatment begins to cause the individual to act in a way that would further cause peers to reject him or her.

The topic of peer group influence has garnered a lot of attention from child development psychologists over the years. One such psychologist is Judith Rich Harris, who developed the Group Socialization Theory in 1994. This theory asserts that peer groups are the most important socializing agent in a child's life. Harris states that parents are interchangeable, as long as the other socializing agents (e.g., peer group and community) remain the same the child will develop into the same adult.

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Peer Groups

►Conformity Among Adolescents

Peer Influences

►Conformity Among Adolescents

Peer Interactions

►Peer Relationships

Peer Nomination Technique

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Synonyms

Peer rankings; Peer ratings; Peer sociometric nominations

Definition

Peer nomination technique is a method of assessing sociometric status in which participants are asked to nominate or rank their peers by the variable of interest.

Description

The peer nomination technique is commonly utilized to assess peer relations or observable individual characteristics. Typically, the nomination process involves asking participants to identify or rank individuals in their peer group based on the variable of interest. The nominations are counted and can be used as either a categorical or continuous measure. Sociometric status can be based on the high number of positive nominations (i.e., popular children), negative nominations (i.e., rejected children), or a low count of both positive and negative nominations (i.e., neglected children) [2]. A summary score, social preference index, is derived by subtracting the negative nominations from the positive nominations. The peer nomination process is also used to assess individual characteristics that are social in nature, such as aggression, by asking participant to report the frequency of the behavior displayed by their peers.

Although peer nominations are correlated with negative academic and social outcomes and have been shown to be more strongly related to objective measures of behavior than self-report, peer nominations can be influenced by a number of variables. For example, race of both the nominators and the peer group can affect the number of positive and negative nominations distributed [1]. Hispanic, Asian, and Caucasian children have been shown to rate their same-ethnicity peers more favorably and less negatively. In contrast, African-American children are more likely to nominate same-ethnicity peers more often in general and in the absence of a positive bias. In general, African-American children are rated more negatively than Caucasian children; however the effect of race decreases as the number of African-American children in the class increases [3]. Methodological issues, such as the way in which nominations are collected, can impact how many and which peers are nominated. More specifically, when provided with a roster of names, participants will endorse negative qualities more often for individuals at the top of the list than those towards the bottom [4].

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Peer Pressure

►Conformity Among Adolescents

Peer Rankings

►Peer Nomination Technique

Peer Ratings

►Peer Nomination Technique

Peer Rejection

►Bullying
►Rejected Children

Peer Relations

►Peer Group
►Peer Relationships

Peer Relationships

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Synonyms

Peer group; Peer interactions; Peer relations; Peers

Definition

Interactions, both positive and negative, with same-age mates.

Description

Children's interactions with same-age playmate are multileveled (individuals, relationships, and groups) and are quite socially complex. Like all relationships, peer relationships are essentially defined by the members' characteristics including, style of interaction, as well as shared and unshared history of the members. Peer relationships are imbedded in the large peer group, which has its own set of interaction rules, hierarchy, and cohesiveness.

The basic aspect of peer relationships is individuals' socially exchanging information over a period of time. Typically, these interactions are dyadic in nature, only involving two members and have a reciprocal interdependent style. The second level of interactions is relationships that have their own associated expectations, style, and emotions. Children's dyadic peer relationships are each viewed as distinct entities that are not interchangeable. Relationships with parents are different from relationships with peers and therefore serve different purposes. Peer relationships vary in closeness of members leading to different types of dyads, including friendships, antipathies, acquaintances, etc. Dyads are especially vulnerable because loss of one particular member means the end of the relationship. Vulnerability to dissolution leads to members stressing issues of commitment, attachment and long-term investment. The highest level of peer relationships is groups. Groups are typically a cohesive set of relationships that have a hierarchy and are rather similar across members.

Children's peer relationships develop with age becoming increasingly complex and integrated. Specifically, toddlers spend most of their time playing in small groups. Toddlers are capable of coordinating behavior with others' through imitation, sharing, and altering their own response to match their partners' behavior. During preschool, children interact more often with their peers during play by sharing/helping more often, conversing more often, and recognizing differences of opinion between members. Sociodramatic play is one of the most complex forms of group interactions during preschool. Children use this pretend play to practice language, social skills, cultural roles, norms, and conflict management skills.

Entry into school provides a dramatic shift in peer relations, as children are spending a great deal of time with peers and in a variety of settings. Therefore, the structure of the peer group changes as children and adolescents reorganizing themselves in to social groups or cliques ranging from three to nine same-sex members. The main system of organization of the groups is through a social status network or popularity hierarchy.

Group social status of members can be determined using various methods. Some measures assess children's visibility in the group; others assess children's impact on the group. The most common assessment determines how liked children are by other members of the group. Children and adolescents who are liked by most of their peers are considered, from a research perspective, to be popular. Conversely, children and adolescents who are disliked by most of their peers are classified as rejected. Those who are essentially ignored or who go unnoticed are considered neglected and those who show a mix of likes and dislikes are considered controversial. Average children and adolescents are liked by a typical amount of peers.

The research constructed categories of acceptance described above (popular, rejected, neglected, controversial, and average) are marked by distinct characteristics of members. Popular children and adolescents are socially skilled at initiating and maintaining relationships, do not talk excessively, speak in a clear and communicatively competent manner, as well as are helpful, cooperative, friendly and sociable. Approximately half of rejected children and adolescents are considered aggressive by their peers. They tend to be disruptive, physically aggressive to others, and exhibit negative behaviors (yelling, taunting, etc.). The other half tend to show social withdrawal, timidity, and/or victimization. Very little is known about the origins of both the neglected and the controversial groups of children and adolescents. The average group is typically used as a research comparison or control group.

Peer acceptance has long-term consequences. Being rejected by peers in childhood often leads to increased delinquency, truancy, and drop-out rates in adolescence. School becomes an unfriendly place to be and social support is not available for these children and adolescents to properly cope with the stressors at school. Psychological adjustment is also affected by peer acceptance. For example, children and adolescents who are anxious and withdrawn have lower self-esteem, more anxiety and more depression. However, this relationship is mediated by one's perception of their own peer acceptance. Rejected children and adolescents who are unhappy with their peer group status seem to be more negatively affected by the lack of peer acceptance than those rejected children and adolescents who are content with their peer group status.

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Peer Sociometric Nominations

▶Peer Nomination Technique

Peer Tutoring

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Synonyms

Classwide peer tutoring; Reciprocal peer tutoring

Definition

The instructional method of students working in dyads or small groups and systematically presenting their peers with opportunities to practice academic skills.

Description

Peer tutoring occurs in general education classrooms and is the arrangement of students teaching academic content to each other. Multiple arrangements ofstudents can be employed: dyads or small groups, same-age or cross-age groups, same-gender or cross-gender groups, and students with and without disabilities paired together. Peer tutoring has been more effective in low-income areas versus high-income areas with students in Grades 1–3 versus students in Grades 4–6. As peer tutoring involves student autonomy, structured student roles, and interdependent group rewards, it can improve academic outcomes, attitudes, self-concept, and social interactions.

In the model of "reciprocal peer tutoring" and "classwide peer tutoring," a teacher prepares folders containing flash cards with content materials such as sight words, math problems, and science facts. Students take turns being the tutor and tutee. The tutor presents the flash cards one at a time to the tutee. If the tutee is correct with a flash card, the tutor provides praise and tokens as rewards. When tutees make errors, the tutor asks the tutee

to try again. If the tutee is still incorrect, the tutor provides the correct answer. A timer is often used to mark the time each student has to be the tutor and five minutes is the length of a typical tutoring session. At the end of a session, the tutor records the tutee's performance on a child-friendly bar graph (i.e., with animals or other icons). Based on students' performances, flash cards are grouped as either mastered or in acquisition. Mastered flash cards are reviewed periodically. During peer tutoring, teachers can walk around and monitor tutoring sessions or use the time to give extra help to students who need it.

Classwide peer tutoring has many advantages over teacher-led instruction. Many children in a classroom simultaneously receive one-on-one opportunities to practice academic skills with little burden on the teacher. Each peer tutoring dyad can work on different material at any given time to meet the needs of a heterogeneous group of students. Another benefit of peer tutoring is children can practice social skills as interacting with a peer is embedded in the strategy. Fluency, or performing skills with accuracy and speed, is often a focus of peer tutoring programs.

Peer tutoring is strategy that increases "active student responding." Active student responding (ASR) is accomplished when students are not sitting idle and simply listening to a teacher talk. Rather, ASR occurs when students are "doing," or performing behaviors such as talking, pointing, and writing. Peer tutoring is also a strategy used to include students with a range of disabilities, from learning disabilities to autism, in general education classrooms. Typically developing peers can serve as the tutors of students with disabilities and the students with disabilities also take turns being the tutors.

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Peer Victimization

▶Bullying

Peers

▶Friendship
▶Peer Relationships

Peer-Tutoring

▶Scaffolding

People Who "Swing Both Ways"

▶Bisexual

People with Special Health Care Needs

▶Chronic Health Problems

Percentile Ranks

▶Norm-Referenced Scores

Perceptual Motor Dysfunction

▶Developmental Coordination Disorder

Perfectionism

▶Perfectionistic

Perfectionist

▶Perfectionistic

Perfectionistic

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Synonyms

Perfectionism; Perfectionist

Definition

One who attempts to achieve a state of perfection.

Description

One who is perfectionistic suffers from perfectionism – a rejection of performance that is less than perfect. Two types of perfectionists have been identified. A*daptive perfectionists* are those individuals who do not allow their perfectionistic attitudes and behaviors to become debilitating in their lives. Adaptive perfectionists will set goals for themselves, but those goals will be realistic and attainable. Because their goals are not unattainable, they can then derive pleasure from methods to obtain those goals and their measures to attain the goals do not become self-defeating. Such perfectionistic individuals have high self-esteem and are flexible in their standards for themselves and others and thus are well adjusted intrapersonally and socially [7, 13]. These individuals, ultimately, can still gain satisfaction from their performance even if they are not "perfect" [7, 13]. In contrast, *maladaptive perfectionists* usually fear the thought of failure and experience anxiety when they perceive that they have failed. They tend to be overly self critical and feel that the effort they put forth is never good enough. This distorted pattern of thinking leads to their inability to be happy or experience pleasure from any effort made [7]. Perfectionistic behaviors, attitudes, and personality traits have been linked to various psychopathologies including mood disorders such as depression, anxiety disorders, substance abuse, eating disorders, somatic complaints such as migraines and chronic aches and pains, suicidal ideation, and suicide attempts [3, 5, 8, 9, 10, 13].

Childhood Development

Perfectionistic children and adolescents may be more susceptible to develop anxiety disorders, depressive disorders, obsessive compulsive disorders, eating disorders, and suicidal ideations and attempts. Perfectionism has also been shown to significantly impact children's academic performance [1]. Adaptive perfectionism has been positively correlated with academic performance whereas maladaptive perfectionism has been shown to be negatively correlated with academic performance [1]. Also adaptive perfectionism has been positively correlated with self-esteem and negatively correlated with depression. Conversely, maladaptive perfectionism has been positively correlated with depression and negatively correlated with self-esteem [1]. Perfectionism has also been found to account for a significant portion of the variance in depressive symptoms, symptoms of OCD, and difficulties in relationships with peers in children suffering from obsessive-compulsive disorder [14]. Social connection has been shown to be a moderator for maladaptive perfectionism and the presence of social connection has been shown to lessen the effects of maladaptive perfectionism as well as lessen the effects of hopelessness (robust predictor of depression) [13]. If meaningful social connections are a buffer from potential suicide, then perfectionistic children who have a maladaptive perfectionistic style and low social connections may be at an increased risk for suicide than their adaptive perfectionistic peers. Depressive disorders in children and adolescents are often accompanied by another mental disorder such as attention-deficit hyperactivity disorder, behavior disorders, anxiety disorders, eating disorders, and substance-related disorders [2]. Other suicide risk factors for children include psychological disorders, relationships within the family, family history of psychological disorders or suicide, substance abuse, high levels of stress, social isolation, exposure to other people who have attempted or completed suicide, the individual adolescent's previous suicide attempts or ideations, the presence of firearms within the household in which the adolescent lives, social and economic problems, dependent personality types, and problems in personal interactions with others [4, 6, 12].

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Performance Anxiety

►Test Anxiety

Performance-Based Assessment

►Projective Assessment Techniques

Peripheral Nervous System

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Synonyms

PNS

Definition

The Peripheral Nervous System (PNS) refers to those aspects of the nervous system that lies outside of the Central Nervous System (CNS), which includes neuronal connections with muscles, nerves, and other regions of the body.

Description

The PNS is a network of afferent and efferent neurons that connects the CNS with the sensory receptors, muscles, and viscera of the body [7]. Simply put, the PNS includes all the portions of the nervous system outside the CNS [8] and not encased within bone [3]. In terms of the aforementioned neuronal pathways, afferent neurons are the circuitry that transmits messages from the PNS to the CNS whereas efferent neurons transmit messages from the CNS to the PNS. These pathways may also be differentiated across sensory and motor lines in which afferent neurons transmit sensory information back to the receptor and processing sites of the CNS and efferent pathways transmit motor signals to the musculature of the PNS [2]. Thus, the PNS is wholly responsible for forming lines of communication between the Spinal Cord and the periphery of the body [1]. The CNS and PNS are in constant communication with one another [8].

From a hierarchical standpoint the PNS consists of two main divisions that are vested in carrying out various functions, the Somatic Nervous System and the Autonomic Nervous System [6]. The Somatic Nervous System is primarily responsible for interacting with the external environment [3]. This division is composed largely of afferent projections which transmit sensory signals from organs such as the eyes, ear, nose, skin, muscles, and joints to the CNS [3].

The Autonomic Nervous System itself has two primary divisions, the Sympathetic and Parasympathetic Nervous Systems [1]. The primary function of the Autonomic Nervous System, as a holistic entity, is the neural control of internal states through its' influence on internal organs, both peripheral and central parts [8]. The primary role of the Sympathetic branch is the regulation of the fight-or-flight response [4]. As such, the Sympathetic division is involved in those activities the expend bodily energy such as increasing blood flow, heart rate, respiration, and blood pressure [8]. Whereas the sympathetic branch of the Autonomic Nervous System acts to expend energy, the Parasympathetic branch functions to conserve it [8]. Specifically, the Parasympathetic branch comes into play at times of rest in which respiration and heart rate are slowed and digestive processes increase so to restock the body's warehouse of energy. The manner in which the Sympathetic

and Parasympathetic branches compliment one another is antagonistic in nature [5]. Increased activation of one leads to decreased activation of the other. This back-and-forth interaction serves the purpose of maintaining homeostasis of internal system, while also modulating the appropriate reactivity to the environment.

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Permissive Parenting Style

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Synonyms

Democratic-indulgent parenting style; Indulgent parenting style; Rejecting-neglecting parenting style

Definition

A style of parenting that has a high level of acceptance but a low level of control or demand.

Description

The permissive parenting style is characterized by a high level of nurturance and low levels of maturity demands from children, low levels of control, and low levels of communication between parent and child. Parents who exhibit permissive parenting are highly involved with their children, but place few demands or controls on them. These parents do little to train their children to be more independent. Children of permissive parents are allowed to do what they want with little input from the parents. Often, permissive parents allow their children to make their own decisions at an age when they are not yet ready to do so.

The permissive parenting style is defined by warm and accepting parents who are uninvolved. These parents can be either overindulging or inattentive [2]. Parents may be deliberately permissive because they believe this style of parenting will foster creative, confident children [4]. Permissive parenting can be categorized as either democratic-indulgent or rejecting-neglecting. Democratic-indulgent parents are loving parents but rarely restrict their children's behavior unless there is imminent danger. These parents tend to be overindulging, often going along with the child's wishes. In comparison, rejecting-neglecting parents do not attend to parenting details due to disinterest or being overwhelmed by life. Different from democratic-indulgent parents, rejecting-neglecting parents are not aware of what their children's interests are or what their children are doing.

Relevance to Childhood Development

Children of permissive parents show many negative outcomes such as the tendency to be unhappy, lacking self-control and self-reliance. These children have been found to do slightly worse in school as adolescents. Also, children with permissive parents tend to be more aggressive, to be somewhat more immature with peers and in school, and less likely to take responsibility for their actions. Permissive parenting may also result in children who are domineering, egocentric, and noncompliant [4]. Children of permissive parents are impulsive and rebellious. The likelihood for being overly demanding and less persistence on tasks is greater for these children as well. The connection between permissive parenting and dependent, nonachieving behavior is particularly strong for males [2].

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Personal Constructs

▶Constructivist Psychotherapy

Personal Fable

►Adolescent Egocentrism
►Imaginary Audience

Personal Identity

►Identity

Personal Narratives

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Synonyms

Diaries; Histories; Journals; Narrative conversations; Outsider witnesses; Stories; Tales; Testimonials

Definition

Polkinghorne [3] stated that "narrative can refer to the process of making a story, to the cognitive scheme of the story, or the result of the process." (p. 13) "Narrative" is a term that has become increasingly used in mainstream culture to describe such things as cultural narratives, gender narratives, political narratives, survivor narratives, illness narratives, etc [2, 5]. Narratives are used therapeutically in psychology. Postmodern therapy approaches consider narratives as a powerful component of therapy since postmodernist therapists believe that reality is constituted in language and narratives can be used to change understandings of a situation. If clients can create a more empowered narrative, it is the first step to creating an improved future. Personal narratives can be utilized in written or oral form. Michael White and David Epston implemented writing letters to their clients between sessions to continue the therapeutic narratives between sessions.

Description

Polkinghorne [3] wrote that psychology has used narratives throughout their history in the form of biographies, life stories and case studies. Polkinghorne in *Knowing and the Human Sciences* (1988) tracks the history of the development of using personal narratives in psychology. As individual psychology developed, the narrative became the tool of psychologists in helping establish personal identity. Karl Scheibe [4] wrote about identity and narrative.

Human identities are considered to be evolving constructions; they emerge out of continual social interactions in the course of life. Self-narratives are developed stories that must be told in specific historical terms, using a particular language, reference to a particular stock of working historical conventions and a particular pattern of dominant beliefs and values. The most fundamental narrative forms are universal, but the way these forms are styled and filled with content will depend upon particular historical conventions of form and place (p. 131).

Time is important in personal narratives as well. The narrative must also include the development of a future narrative. So the temporal ordering of the events becomes important and must include many events. This provides the opportunities of including overlooked events which can be incorporated to identify strengths, alternative ways of understanding events and imbue a sense of hopefulness for the future.

Relevance to Childhood Development

The power of storytelling has been with us since the beginning of time. Originally, stories of valor and morality were handed down from generation to generation orally until they began to be written down. Jerome Bruner wrote extensively in *Acts of Meaning* [1] about the fact that children learn early on the necessity of balancing their own desires with those of the family. "Telling the right story, putting her actions and goal in a legitimizing light, is just as important. Getting what you want very often meant getting the right story. . . . A "right" story is one that connects your version through mitigation with the canonical version" (p. 86). Jerome Bruner described narratives as an innate way that children understand even before they have words. You can see children create a sequencing of events in their play. Narratives are the product of how we talk to ourselves in order to sort through our thoughts and develop a coherent understanding of our experiences.

Children initially use narratives to sequence and describe what occurred. The next step children create narratives which describe the ordinary sequencing of events and create explanations for when a divergence occurs. Finally perspective and evaluation is introduced to the narrative. The final step is introduced when the narrative includes solving problems.

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Personal Recollection

►Autobiographical Memory

Personality Assessment

►Projective Assessment Techniques

Personality Testing

►Behavior Assessment System for Children: Second Edition (BASC-2)
►Conners' Teacher Rating Scales: Revised
►Conners-Wells Adolescent Self Report Scale
►Millon Adolescent Clinical Inventory
►Millon Adolescent Personality Inventory

Person-Centered Therapy

►Client-Centered Therapy
►Humanistic Therapy

Perspective Taking

►Mindblindness

Perspective-Taking

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Synonyms

Interpersonal understanding; Role-taking; Social perspective coordination; Sociomoral perspective-taking

Definition

Perspective-taking is the ability to understand both one's perspective and the perspective of another person.

Description

Perspective-taking, the ability to understand the distinct perspectives of self and other, is a central process in social cognitive development. Perspective-taking impacts the ways in which people understand themselves and interact with other people. It occurs any time and everywhere that an understanding of self and other is required. It varies according to context and the participants in a given context.

According to G. H. Mead [7], a central factor in social cognitive development is the individual's ability to take another's perspective, as that perspective both informs ones understanding of the self and influences interpersonal interaction. Role-taking or perspective-taking includes the understanding of others' thoughts and attitudes demonstrated though cooperative activity. The importance of this premise is reflected by the presupposition that perspective-taking ability underlies many research areas, including interpersonal interaction, aggression and empathy [15], moral reasoning [8], prejudice and ethnic identity [1, 2], resiliency [9] , self theory [6], and Piagetian cognitive stage theory. Perspective-taking has been used as a barometer for the development of social cognitive processes such as moral development and has served as a target for intervention in program development (e.g., Facing History and Ourselves) [4]. Perspective-taking components are considered to be possible predictors of psychological dysfunction and research suggests that perspective-taking ability in combination with interpersonal interaction and personal qualities may protect individuals form psychological disorder and promote resiliency.

The interpretive function of perspective in the development of self-knowledge and other understanding has served as a starting point for many philosophical efforts to explicate human behavior [5]. Habermas [5, (p. 132)] notes that social perspective coordination or sociomoral

perspective-taking may be understood in terms of "the context of the de-centering of the young person's understanding of the world". Perspective-taking is multidimensional and depends upon the independence and interrelatedness of the self-other perspective-taking constructs, life experiences and contextual variability and is influenced by the characterization of adaptive behavior as well as difference individual development. The self\other components of perspective-taking serve interpretive functions within the formation of perspective derived from context where context may be understood as the arena for experience. These perspectives are reapplied to other contexts, informed by experience and re-conceptualized according to the changing requirements of each context. Perspective-taking is generally considered to have hermeneutical properties because it allows for the observation and interpretation of behavior on a conceptual and descriptive level [5].

Relevance to Childhood Development

Perspective-taking processes are grounded in the development of the self and the ability to understand the viewpoints of others. Because it is a cognitive developmental process, perspective-taking development is age related with higher orders of perspective-taking generally being attained with age. Research literature generally concurs that awareness of psychological distinctions between self and others and a perspective of the self as a social entity emerge around the age of 8 years [3]. Prior to this age, perspective-taking is largely undifferentiated. Although perspective-taking may develop across the lifespan, the formative years of this process have been identified as 8–15. Interventions designed to impact perspective-taking development necessarily target these formative years, 8–15, and tend to focus on the classroom where children of this age range spend most of their time.

A major influence in this area has been Selman's models of perspective-taking and of social perspective coordination which focus on understanding the self and others in interpersonal interaction. These models integrate Mead's perspective of role-taking as the fundamental process in social cognitive development with Piagetian stage theory of cognitive development [10–12]. Selman initially developed a stage theory of social perspective coordination derived in part from Kohlberg's cognitive moral development theory and previous work on role-taking ([10]). Selman [12, (p. 6)] defines social perspective coordination and role-taking synonymously as "the developing ability to differentiate and integrate the self and others' points of view through an understanding of the relation between the thoughts, feelings and wishes of each person". Selman's model extends beyond the identification of the capacity to coordinate social perspectives to understand behavior in social interaction in different contexts such friendship, and parent-child relations. Selman [12–14] identifies levels of social perspective coordination/ perspective-taking as follows:

Level 0 egocentric and undifferentiated: The child is egocentric and has difficulty in differentiating the physical and psychological characteristics of others.

Level 1 subjective and unilateral: The child is able to differentiate psychical and psychological characteristics but can only perceive one point of view in perspective-taking.

Level 2 Self-reflective and reciprocal: The ability to take a second-person perspective emerges with some evidence of the acknowledgement of the necessity of reciprocity in relationships.

Level 3 third person and mutual: Children can take a third -person perspective of relationships and mutually coordinate perspectives.

Selman has also identified a fifth level of perspective-taking which emerges around age 14 years and encompasses adulthood. It is in this stage that individuals understand that their perspective-taking may be influenced by systems such as societal values. Empirical research and subsequent programs have focused on providing evidence and intervention for the first four levels.

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Pervasive Developmental Disorders

►Childhood Disintegrative Disorder

PET

►Positron Emission Tomography

Pharyngeal Response Mechanism

►Swallowing Reflex

Pharyngeal Swallow Response

►Swallowing Reflex

Phenotype

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Definition

The observable physical and behavioral characteristics of a person.

Description

The phenotype is determined by genes inherited from the parents and is influenced by environmental factors. If one or two dominant alleles are inherited such as dark eyes the person will have dark eyes. However, two recessive alleles are inherited (blue eyes) the recessive phenotype (blue eyes) will be inherited.

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Phonemes

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Definition

In oral language, the smallest meaningful segment of sound (e.g., /d/, /t/, /k/).

Description

Phonemes are the smallest units of speech and they are written as graphemes, or letters of the alphabet. Phonemes are marked as using diagonal lines (e.g., /d/) which refers to the sound the letter *d* makes. Phonemes are abstract units of language and children are able to use the sounds of parts of words to help decode the words. Children use their knowledge of individual speech sounds and begin relating it to the sound of whole words as they become phonemically aware.

Relevance to Childhood Development

Understanding that words are composed of smaller units – phonemes – is a significant achievement for young children because phonemes are abstract language units [2–4]. Children should be exposed to environments rich with language as soon as possible because it will model for children proper word combinations and pronunciation techniques that will encourage children to develop their

own language skills [1]. Children begin to hear acceptable sounds and sound patterns over and over in the words used most frequently in their language. When children can auditorally discern the subtle differences in phonemes (e.g., hit vs. hint; bit vs. sit; bash vs. batch), they are developing necessary skills to become proficient readers [5]. There is evidence to indicate that children who are unable to discern phonemic differences auditorially will struggle with reading [4].

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Phonemic

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Definition

The understanding that speech is made up of a series of sounds and that individual words can be broken down into phonemes, the smallest unit of sound.

Description

Phonemics is known in the field of linguistics as the study of phonemes and can also include their written representations. The phoneme is an indivisible unit of human sound in any language which carries meaning. This study includes articulation, or production of the sounds, the auditory perception of the sounds, and the meaning behind the sounds. Phonemic study includes the understanding of the differences between sounds and how those sounds can change the meaning of the words used within a spoken language.

Phonemic awareness is the ability to identify words as having a specific sequence of sound, and then be able to manipulate these phonemes or sounds by blending sounds, isolating sounds, recognizing rhyme, among other tasks. For instance, four year old Matthew might notice that Matthew, Meagan (his younger sister), and Mommy all start with the same sound. This recognition of sound is referred to as phonemic awareness.

Segmentation and blending of sounds are aspects of phonemic awareness which will later be useful to the child as he begins to read and write. For example the word *fish* can be segmented into three phonemes or sounds as /f/, /i/, /sh/. The recognition of rhyme is also useful to young readers and writers. If a child can recognize the rime (or ending segment) of the word *hat* as being *-at,* then he can manipulate the beginning sound to create *mat, fat, cat,* and others.

It is important to note that phonemic awareness is the understanding and manipulation of the spoken sounds of language and should not be confused with the sound-symbol relationship of printed text.

Relevance to Childhood Development

At an early age, young children become aware of the spoken sound. Children hear streams of sound, and soon associate that with meaning. Later, they learn to enjoy and play with language through nursery rhymes, finger plays, and books to begin on such as *Brown Bear, Brown Bear* [3]. Adults can help the young child delight in language play through these experiences and start noticing the sounds and structures of our language.

In our English alphabetic written system, there is a strong relationship between the spoken sound and the printed word, with exceptions. Due to this strong relationship, it is critical that young children be able to recognize the sounds of the language so that they will be able to read and write using our conventional system. This whole system is built upon a rich foundation of oral language. Parents and caregivers should ensure all children are immersed in a literacy-rich environment with conversation, singing, nursery rhymes, and books read aloud repeatedly. These playful actions will not only teach the structure and nature of our language to the children, but will lay a strong foundation of literacy learning for the future. The National Reading Panel [4] suggests that children who have a strong foundation in phonemic awareness are less likely to develop reading problems during formal instructional schooling.

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Phonemic Awareness

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Synonyms

Orthographic reading skills; Phonological awareness

Definition

Phonemic awareness is the ability to recognize and manipulate the smallest units of sound in spoken communication. This skill is exhibited through identification and manipulation of the sounds of oral language.

Description

The term *phonemic awareness* is often used interchangeably with *phonological awareness*. Phonemic awareness, however, generally applies to the ability to recognize and manipulate the smallest unit of the spoken word, the phoneme, while phonological awareness applies to larger units of language such as syllables, onsets, and rimes [1, 2].

According to Goswami [4], phonemic awareness "refers to the knowledge that a word like *cup* consists of three phonemes, corresponding to the letters *c, u, p*." Not only is phonemic awareness defined as the knowledge of the symbol/sound correspondence, but also the ability to manipulate these relationships in order to demonstrate the awareness.

Phonemic awareness is simple to assess and several formal and informal measures of the construct exist. According the National Reading Panel [3], phonemic awareness can be taught through the isolation, identification, categorization, lending, segmentation, and deletion of phonemes in context. In a meta-analysis of studies of phonemic awareness instruction, the National Reading Panel found the overall effect sizes on reading (d=0.53) and spelling (d=0.59) outcomes were moderate. These same techniques can be used to assess phonemic awareness, as well.

Relevance to Childhood Development

There is debate about the role of phonemic awareness in reading acquisition. For instance, although the International Reading Association [2] references several studies supporting the ability of phonemic awareness to predict later reading ability, the exact role phonemic awareness plays in reading development is unknown. Presumably, phonemic awareness is a prerequisite for decoding the written word because it underlies the appreciation of symbol–sound relationships [5]. Phonemic awareness develops over time.

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Phonemic Development

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Definition

The part of language development that uses phonology (the part of language involving speech sounds, including pronunciation, fluency, and intonation) phonemic awareness (the understanding that language is made up of smaller

units: words, syllables, and sounds) and phonics to become proficient in speaking, reading and writing language.

Description

Phonemic development emphasizes language development skills with the ultimate goal of proficiently in reading and writing. Phonemic development begins with the skill of phonology – the part of language that involves an individual speech sound that a letter makes. Phonology is well developed in the primary years of life, and children by age 5 have acquired most of the phonemes – individual speech sounds. Phonemes are the smallest units of speech and they are written as graphemes, or letters of the alphabet. Phonemes are marked as using diagonal lines (e.g., /d/) which refers to the sound the letter *d* makes. Phonemes are abstract units of language and children are able to use the sounds of parts of words to help decode the words. Children use their knowledge of individual speech sounds and begin relating it to the sound of whole words as they become phonemically aware [3].

Phonemic awareness develops in children in the elementary years after they have mastered phonology. Phonemic awareness refers to a child's basic understanding that speech is composed of a series of individual sounds, syllables, and words, and provides a foundation for a greater depth of understanding of language. The simplest level of phonemic awareness is to understand that words are made up of multiple sounds that we can hear, identify, and match to similar word patterns such as rhymes. As children gain this knowledge and perform these functions, they are developing auditory discrimination. Children are considered phonemically aware when a child can choose a duck as the animal whose name begins with /d/ from a collection of toy animals. Also, children know that a word such as *bug* is composed of three sounds that can be segmented into those sounds of /b/u/g/. Phonemic awareness has been referred to as a precursor to phonics and necessary for children to learn in order to benefit from phonics instruction.

Phonics is the last stage of phonemic development and refers to the relationship between the sounds in speech and the spelling patterns in written language. The emphasis is on spelling patterns and is based on the prior knowledge of phonology and phonemic awareness. There is no simple way to explain all of the types of phonics information that students need to learn, nor can they be listed in a clean, sequential order, because it is built on a child's foundation of phonemic awareness. Children should be taught the letters of the alphabet first, then consonants, vowels, blends (e.g., *sh, ch*), and phonics generalizations. Phonics generalizations refer to rules to clarify English spelling patterns. For example, one rule is that *q* is followed by u and pronounced /*kw*/, as in *queen* and *quick*. Actual reading and writing will improve the understanding of phonics.

Relevance to Childhood Development

Children acquire speech sounds gradually in the early years of life and it is common to have difficulty understanding preschoolers at the phonology stage because they have not mastered key sounds. Phonology is a precursor in the developmental process of phonemics. Understanding that words are composed of smaller units – phonemes – is a significant achievement for young children because phonemes are abstract language units. Children should be exposed to environments rich with language as soon as possible because it will model for children proper word combinations and pronunciation techniques that will encourage children to develop their own language skills. Children begin to hear acceptable sounds and sound patterns over and over in the words used most frequently in their language.

When students enter the elementary years of schooling they will be mastering phonemes and becoming phonemically aware and advancing to whole words. Phonemic awareness has been found to be very important in learning to read in first and second grade. Children that were able to distinguish among individual speech sounds found it easier to learn and read. As children develop phonemic awareness, they learn to segment, manipulate, and blend spoken language. Children use strategies to decode and encode words as they are trying to read. Listed below, are five developmentally appropriate phonemic strategies very common for children to use as they become more proficient in reading.

1. *Matching sounds to words.* Children learn to identify a word that begins or ends with a particular sound. For example, when shown a brush, a car, and a doll, they can identify *doll* as the word that ends with /l/.
2. *Isolate a sound in a word.* Children learn to isolate the sound at the beginning, middle, or end of a word. After the teacher says the word *hat*, for example, children can identify /a/ as the middle sound.
3. *Blend individual sounds to form a word.* Children learn to blend two, three, or four individual sounds to form a word. The teacher says /b/, /i/, /g/, for example, and the children repeat the sounds, blending them to form the word *big*.
4. *Substitute sounds in a word.* Children learn to remove a sound from a word and substitute a different sound. Sometimes they substitute the beginning sound, changing *bar* to *car*, for example. Or, students change the middle sound, making *tip* from *top*, or they substitute the ending sound, changing *gate* to *game*.

5. *Segment a word into its constituent sounds.* Children learn to break a word into its beginning, middle, and ending sounds. For example, children segment the word *feet* into /f/, /e/, /t/ and *go* into /g/, /o/ [5].

As children are developing their phonemic skills, it is important that children are exposed to a language-rich environment. Singing songs, chanting rhymes, reading aloud, and games give children the opportunity to orally match, isolate, blend, and substitute sounds and segment words into sounds. Phonemic awareness instruction is crucial to the success of the development of skills and should meet four criteria:

1. *Activities should be appropriate.* Children of 4, 5, and 6 years of age should involve songs, nursery rhymes, riddles and wordplay books because these activities are engaging and encourage playful experimentation.
2. *Instruction should be planned and purposeful.* When teachers have an objective in mind as they are teaching phonemic awareness, they are more likely to be effective in focusing children's attention on the sound structure of oral language.
3. *Phonemic awareness should be a part of a balanced literacy program.* Instruction should integrate comprehension, decoding, vocabulary, writing, and spelling. It is important that children perceive the connection between writing and oral language.
4. *Activities should be meaningful.* Connect activities with topics that are relevant and meaningful for the child's life. This will resort and a much more purposeful activity and children will become more motivated to learn [6].

It is important that children have a solid foundation on phonemes and phonemic awareness so they can be most successful in phonics and reading and writing. Second language learners whose native language uses an alphabetic system, such as Spanish, will learn phonemic awareness and phonics much more easily than students whose native language employs a logographic system of symbols without sound correspondences, such as Chinese. Language can be difficult for some to learn so adults and teachers should always be supportive and encourage language exploration and model proper techniques in regard to learning language [2].

As children begin to connect sounds with words, it is essential to encourage reading and writing which will enhance their language skills. Phonics instruction is an important part of reading and writing instruction during the primary grades, but a combination of instruction and actual reading and writing activities is most successful for students. Without this meaningful application of what they are learning, phonics instruction can often become ineffective. There are four stages of phonemic writing development as children progress in their writing skills.

1. *Prephonemic Stage.* Random letters are used to represent whole words or stories. The letters chosen have no relationship to the sounds in the story but are "placeholders for meaning."
2. *Phonemic Stage.* Letters are used that match some of the sounds in the words or stories being written. A letter matching the beginning sound of a word might be used to represent that whole word (e.g., *p* for *people*).
3. *Transitional Stage.* The child spells out words using correct letter sounds. However, writing contains much "invented spelling" in which conventions are not followed. For example, the silent e is often omitted, as in *mak* for *make*.
4. *Conventional Writing.* Some children begin writing as adults do during the primary years, using correct spellings and other writing conventions [4].

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Phonemic Reading Skills

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Synonyms

Character deciphering abilities

Definition

Skills used to string individual phonemes together to successfully read whole words. Ability to segment individual sounds to successfully read whole words.

Description

As children begin learning to read, they decode words using a left-to-right analysis of letter–sound relationships [1]. Readers must master a variety of skills to recognize, decode, and understand the meaning of words and comprehend what they are reading.

One strategy for children learning to read consists of phonemic skills, which involves learning to read a word by sounding out the individual phonemes, or the smallest unit of sound that distinguishes one word from another [2]. In order for a child to successfully learn to read and write words, they must first be able to analyze the sound of words. Phonemic skills are the foundation to world solving in both reading and writing [2]. Mastering these skills allows learners to read words by thinking about the sounds.

While breaking words apart by phonemes is a help with simple words, such as hat, phonetically breaking up more complex words, such as restaurant, is not as easy. As readers are introduced to these more complex words, they must begin to use phonemic skills in combination with other skills, such as visual, morphemic, linking, and research to comprehend each word.

Relevance to Childhood Development

Learning and understanding phonemes is a critical step for children to master before most will achieve success in reading [3]. As children start the process of learning to read, one of the first ways they are generally taught to decode words is by sounding them out. Breaking whole words down into individual phonemes is a skill that children are taught during early years of elementary school and lay the foundation for academic and reading success later in life.

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Phonics

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Definition

Phonics instruction is a way of teaching the relationship between the sounds and symbols of our alphabetic system of language in reading and writing, usually used in beginning reading instruction through Grade 2 [2]. It is also referred to as one of the ways in which readers solve words.

Description

Phonics instruction teaches children how the sound/symbol relationships of our language work. This knowledge is useful in decoding unknown words which are not sight words. The National Reading Panel [5] states that phonics knowledge is a strong predictor of reading proficiency.

When a teacher points out that the letter *m* represents the first sound in *milk, money,* and *Maggie,* phonics is being taught. Phonics is also being taught when a young reader is taught the difference in the sounds of letter *c* in the words *city, cake, ice,* and *crate.* When youngsters study word families or word chunks such as *–ight* in the words *night, might,* and *fright,* they are engaging in phonics instruction. Phonics instruction and regular spelling instruction go hand-in-hand [2].

Relevance to Childhood Development

As children progress in their language development into young readers and writers, the knowledge of phonics skills becomes invaluable in their journey. However, adults must be cautioned that the instruction of phonics is not an end into itself. Some children will need more phonics instruction than others [1, 2, 4]. Heilman [4] recommends that a "guideline for instruction is that *the optimum amount of phonics instruction a child should be exposed to is the minimum the child needs to become an independent reader" (p. 2).*

Phonics instruction does have its limitations in teaching children to read. The English language is speckled with non-regular spellings of words such as many of the words which come from other languages such as the word *bouquet.* Also confusing are homonyms such as *weak* and *week,* silent letters such as in *comb,* and the many exceptions to our phonics rules such as *been, said, have,* and *come.* These exceptions and derivations are why children need a variety of methods in solving words in addition to phonics instruction.

Phonics instruction is most valuable when supported with other literacy instruction of comprehension and vocabulary through language-rich texts and experiences [3, 6]. It is within the context of these rich literacy experiences that children will be able to apply and use their phonics knowledge, yet not get stumped on the irregularities of the English language.

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Phonological Awareness

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Synonyms

Phonemic awareness; Phonological learning; Phonological sensitivity

Definition

Phonological awareness is the ability to understand and recognize the sound structure of the spoken language.

Background

As early as the 1940s many researchers claimed that the inability to recognize the sound structure of the spoken word was often apparent in dyslexic (incapacity to read) cases. Despite these findings, phonological awareness has only been a main focus of reading research since the 1970s and 1980s. It was around this time that the relationship between phonological awareness and reading was established [2]. The early neglect of researchers focus on the relationship between phonological awareness and reading is understandable considering phonological awareness does not involve written letters; rather, phonological awareness refers to one's awareness of the sound structure of oral language. Since the 1970s, however, phonological awareness has been consistently found to be the best predictor of future reading success [4, 5, 11, 17].

Phonological awareness is best conceptualized as a broad entity made up of separate skills. Scheule and Boudreau [12] suggest that there are simple, shallow level phonological awareness skills and complex, deep level phonological awareness skills. These shallow skills include separating words into their respective syllables, identifying as well as generating rhymes, and being able to recognize words that share the same beginning sound. At the more complex level of phonological awareness is the ability to recognize, separate, and manipulate words into their smallest sound units also known as phonemes. This more intricate ability is commonly referred to as phonemic awareness.

Scheule and Boudreau [12] identify some common skill sets in the sequence of phonological awareness. This sequence complements the suggestion that phonological awareness skills range from simple to complex. In ascending order from simple skill sets to more complex skill sets are the ability to separate words into syllables, rhyming, matching words by onsets and rimes, segmenting words into their respective onset and rimes, segmenting initial and final sounds, blending sounds into words, segmenting words into individual sounds, and deleting and manipulating phonemes. (For a graphic representation refer to Scheule and Boudreau [12].)

The initial ability of a child to recognize that a word is made up of separate sounds is intuitive. Therefore, in most cases the child will not consciously tell you how many syllables there are in a word; rather, they will just demonstrate an understanding that the word is made up of separate sounds rather than one big sound. Research shows that children begin demonstrating phonological awareness by understanding that words break down into smaller groups of sounds. The child's awareness that words are made of individual sounds comes much later in his/her phonological development [17].

The ability to rhyme is usually developed through nursery rhyme books. A child can demonstrate this skill in different ways. He/she could be presented with three words (cat, mat, dog) and told to provide you with the two words that rhyme. The child could also simply be asked what word rhymes with cat. Research shows that nursery rhymes can be memorized by children as early as 3 years of age [17]. Although not consciously aware of their ability to rhyme, children will be able to generalize this skill to understanding the phonology of a word.

To match initial sounds of the word the child could be presented with a list of words (bat, dog, ball) and asked which two words have the same beginning sound. As well, the child could be presented with a list of words (bat, dog, ball, bank) and asked which word is not consistent with the rest of the beginning sounds (dog). Similarly, the same type of exercise would be feasible to match ending sounds of the word. However, in this case, you would provide the child with a list of words with similar endings (duck, tuck, truck, rabbit) and ask them to identify the words with similar endings or the word that does not belong.

Segmenting words into onset and rimes and segmenting words into initial and final sounds are similar

skill sets and should be discussed together. Research shows that segmenting the word where the onset and rime divide is easier than dividing an initial and final sound [16]. The onset is the initial phoneme in a word and the rime is the vowel and consonant that follows. For example, in the word "dog" the onset is /d/ and the rime is /og/. If the child were to divide an initial and final sound he/she would divide the word as such /do/ and /g/. The ability to segment is complex because of a concept referred to as coarticulation. Coarticulation pertains to the phenomenon in which vowels can be articulated in isolation, but a consonant must be coarticulated with a vowel. For instance, the vowel /a/ has an exclusive sound when spoken by itself. However, the /t/ sound changes depending on the word that is spoken (take-/tuh/, tap-/tah/). This is the most likely reason that it is more difficult for a child to separate an initial sound from a final sound than it is for them to separate an onset from a rime [17].

The ability of a child to blend individual or separate sounds into a cohesive word comes much later on in Scheule and Boudreau's [12] phonological progression scale. This is a much more difficult concept for children to grasp. This ability is dependant upon most of the previous skills that have already been mentioned. Naturally, children must be aware that whole words are made up of separate sounds before they begin to blend the separate sounds into a whole meaningful word. Up until now the focus and skills involved in the phonological awareness progression have concentrated on segmentation where as this ability focuses on blending. When orally presented with the individual sounds of the word (/s/ch/oo/l/) the child will be able to blend the different sounds into a cohesive and meaningful word (school).

The next skill along the ascendancy of phonological awareness abilities is the segmentation of words into individual sounds, also known as phonemic awareness. Scheule and Boudreau suggest that this foundation is critical for future reading success, more so than any other skill in the progression of phonological awareness. A child who possesses this ability will understand and demonstrate that the word tap can be segmented into the individual sounds or phonemes /t/a/p/. Adams [1] suggests that this ability develops around the age of 6 years old. The child is now ready to make appropriate use of the alphabetic principle to read unknown words without the direction of someone else.

The ability to segment words into phonemes usually leads to the ability to delete and manipulate phonemes. This is the understanding that the deletion of a phoneme will change the meaning of the word. Children will also be aware that they can manipulate individual phonemes to make different words at this stage. For example, if the child were to remove the /t/ in top and insert a /m/ in the place of the /t/, the child would understand that he/she has changed the meaning of the word. Further, if the child were to manipulate the word /top/ in reverse order, he/she would be aware that the new word would be /pot/.

When progressing along the complex continuum of phonological awareness skills, Scheule and Boudreau [12] suggest that the acquisition of phonemic awareness skills begins with onset-rime segmentation. A typical child will then ascend up the gradient of skills to acquire the other steps necessary for phonemic awareness including, the ability to segment initial and final sounds, blend individual sounds into words, segment words into sounds, and delete, add, and manipulate phonemes. As stated previously, the skills that comprise phonemic awareness are necessary components of phonological awareness, and tend to begin to develop around the time that the child enters preschool and kindergarten [17].

It is important to distinguish between phonological awareness and phonemic awareness which are closely related but not the same. Phonological awareness is the ability to understand the sound structure of language where as phonemic awareness is the ability to manipulate and isolate individual sounds known as phonemes. Confusion tends to surround the differences between these two topics because they are so closely related in both meaning and spelling. It is important to remember that phonemic awareness is one of the skills that comprise the concept known as phonological awareness.

It is also important to distinguish between phonological awareness and phonics. Phonological awareness in its pure form only refers to the sound structure of *oral* language. It does not actually have anything to do with written language. In contrast, phonics is the teaching of the alphabetic principle; the knowledge that different sounds of a language are represented by written symbols on paper. Phonological awareness is not dependent on phonics; however, phonics is dependent on phonological awareness. Children must understand the phonological structure of a word before they can learn the letters that correspond to those different sounds. Understanding the alphabetic principle, however, has shown to strengthen a child's phonological awareness [12].

Relationship to Early Childhood Development

There remains a lack of research about how phonological awareness tends to develop in children. There are, however, some theories which posit a possible developmental path that phonological awareness follows. The Lexical

Restructuring Model [8] hypothesizes that children learn words holistically early in language growth. As their language develops they learn to represent language in single phonemes. In this model then, vocabulary is the driving force of the development of phonological awareness. Once a child's vocabulary increases so does their ability to understand that words are represented by small units of sound rather than holistic units. They develop a lexical base which helps them generalize knowledge from word to word and draw comparisons. Children use this lexical base to identify words by syllables eventually progressing to identifying them by individual phoneme representations. When children develop the ability to recognize that words are made up of individual phonemes, they are now ready to learn the alphabetic principle.

Ziegler and Goswami [18] propose a theory which they refer to as the psycholinguistic grain size theory. They hypothesize that a child's phonological representations of words become finer grained and more complete over time rather than becoming more segmental as the Lexical Restructuring Model posits. Further, the psycholinguistic grain size theory suggests that repeated exposure to vocabulary and the spoken structure of language provides the foundation to develop phonological awareness. However, they claim that learning at the phonemic level does not happen until reading instruction begins. Children learn phonemic awareness through orthographic (written structure) representations of the word. Children who have reading difficulties are unable to efficiently use phonological representations of words to understand the orthographic representation of words. Thus, these children have a problem learning the alphabetic principle.

Based on others research, Christensen [5] describes a developmental trajectory of phonological awareness which begins with knowledge of rhymes. Rhyme knowledge is usually acquired by the child through nursery rhymes and childhood language games. From this intuitive knowledge of rhymes, the child becomes receptive to the onset-rime structure of language and syllables. While these abilities generally develop before a child learns to read, phonemic awareness occurs after reading instruction has commenced.

Whatever model one chooses there is little doubt that phonological awareness is indicative of future reading skills as evidenced by the myriad of researchers who adopt this view [4, 5, 12, 15, 17]. These future reading skills refer to phonemic awareness, the alphabetic principle, reading vocabulary, reading fluency and reading comprehension. Reading comprehension is the ultimate literacy skill that educators want children to attain. It is referred to as an outcome measure because it draws upon all of the abilities associated with reading to succeed. Because phonological awareness predicts all of the skills necessary to comprehend reading, it is arguably the foundation of reading literacy.

Since it is clear that phonological awareness has a strong effect on future reading success, it is relevant to discuss current reading literacy problems. Contrary to what many believe, the ability to read does not occur naturally. In fact reading draws upon many cognitive skills to function [2] and needs intense instruction to develop [3]. There are 15–20% of Americans currently diagnosed with a language disability; most of this percentage is accounted for by dyslexics, or those who do not have the ability to read [10]. Nearly 80% [3] of the 3 million children ages 3–21 (NICHCY, [9]) diagnosed with a Learning Disability have dyslexia. Further, the most common type of dyslexia, dysphonetic dyslexia, occurs because of a deficit in phonological awareness. Specifically, a dysphonetic dyslexic is unable to match the phonological sound of a word to the orthographic counterpart. These staggering statistics demonstrate how important it is for a child to fully develop phonological awareness. Unfortunately, nearly 20% of students are affected to some extent by deficits in phonological awareness [3].

As discussed earlier, phonological awareness helps students relate oral language to written language. It has been shown to predict a child's word reading ability [14]. Birsh [3] suggests that if children fall behind in attaining a proficient level in word reading, they only have a one in eight chance of catching up to their same age peers. Luckily, deficits in phonological awareness can be detected as early as kindergarten and first grade. In fact, it is absolutely necessary to identify these children as early as possible and intervene appropriately. If these students who lack a proficient level of phonological awareness go unidentified until third grade they will likely continue to be plagued by reading disabilities.

Birsh [3] further discusses a study supported by NICHD, which showed that 74% of the children who went unidentified with reading deficits until third grade continued to evidence a reading disability in ninth grade. To add upon these somber research findings, many students who have a reading disability are not recognized until third grade [6].

Maughan [7] uncovered long-term effects of reading difficulty through a review of the literature. Self reports suggest that adults face much embarrassment and anxiety when required to fill out a form, write checks, or even

write a single letter. Often books are avoided by these individuals as a source of information. If one considers the importance of written material as a means of retrieving information, this finding is significant. Also uncovered were occupational attainments of disabled readers. Specifically, those who traditionally struggled with reading were more likely to be unemployed at 23 years of age, and more likely to remain unemployed than their non-disabled peers. Maughan [7] also makes reference to educational attainment as the strongest predictor of occupational success. Considering the importance that reading has in educational attainment, it is reasonable to assume that a disability in reading can have a negative impact on future job success as well.

Maughan [7] also found that studies reveal that struggling readers whose problems persist into adulthood have low self-esteem. This low self-esteem leads to many other problems not directly associated with a disability in reading. However, because a reading disability leads to low self-esteem, it can be considered an important risk factor for other problems in adulthood. In fact, reading disabilities have shown to be present in individuals with conduct disorder, emotional disturbances, and depression. This finding is logical considering the frustration that an individual displays when struggling with a reading task. This frustration is persistent throughout the day because reading is so deeply engrained in the navigation of society.

Given all of the research that is available on phonological awareness there are still many inconsistencies present. Although it is no longer a mystery how phonological awareness develops it is still not an exact science either. Also, many researchers use different terminology when discussing phonological awareness. Some researchers use different terminology in describing the same concept or the same terminology when describing different topics. A common example is the tendency of researchers to interchange the terms phonological awareness and phonemic awareness when indeed they represent two different abilities. As well, both the number and types of skills that ought to be considered part of phonological awareness differ between researchers. Perhaps these inconsistencies provide evidence that further research is needed to make this concept more cohesive. There also needs to be more research conducted to eliminate the persistence of phonological deficits into adulthood. As well, research regarding the longitudinal detriment caused by reading disability across the lifespan is still limited. Despite these inconsistencies and limitations, there is little doubt that phonological awareness is absolutely necessary for a child to succeed in reading literacy.

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Phonological Coding

▶Phonological Learning

Phonological Decoding

►Orthographic Reading Skills

Phonological Development

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Definition

The part of language that involves developing speech sounds including pronunciation, fluency, and intonation.

Description

There are approximately 44 speech sounds in English. Speech sounds used combination with other speech sounds produce an oral language. Phonological development refers to forming and using speech sounds to clearly communicate language. As more sounds of a language are acquired, language becomes clearer, and pronunciation, fluency, and intonation all improve. Intonation involves pitch – how high or low a voice is when producing a sound; stress – how low or soft a word is spoken; and juncture – the pauses or connections between words, phrases, and sentences. Articulators must be used simultaneously to communicate effectively and include the front and back of the tongue, teeth, lips, roof of the mouth, vocal cords, and lungs. Not only do articulators need to be manipulated to create sounds, but they must also be connected together rapidly in order to form words and communicate ideas. Also, regional and cultural differences exist in the way people pronounce phonemes. It is important to note that those learning a second language may have to learn how to produce new sounds that are different from their native language. It is often difficult, particularly for older children and adults, to properly incorporate new sounds in their speech as they learn a nonnative language.

Relevance to Childhood Development

Children acquire speech sounds gradually in the early years of life and it is common to have difficulty understanding preschoolers because they have not mastered key sounds. A child's language and speech abilities grow according to their need to use it, their interests, and the meaning it has for them. Language acquisition is fostered by positive interactions regarding language between the child and an adult. It is important to recognize that phonology develops gradually in early childhood, and preschoolers can be expected to struggle with speech sounds throughout much of this period. Harsh correction or insistence that children start over again will not be useful and may even inhibit or discourage further language learning and exploration.

Environments rich with language will model for children proper word combinations and pronunciation techniques that will encourage children to develop their own language skills. Children begin to hear acceptable sounds and sound patterns over and over in the words used most frequently in their language. Rules become incorporated by children in phonological development such as adding the phoneme /s/ to make things plural or learning that only certain sounds are compatible in the English language. For example, children will learn that phonemes /d/ and /p/ typically will not be pronounced in succession. Most phonological rules are acquired before age five.

Phonological development also plays a crucial role in reading instruction during primary grades. Children use their proficiency in pronouncing sounds in conjunction with phonics, which are associations with sound-symbol correspondences, as they begin to read and write. Inventive spelling will be common as children learn to write because they will be relying on the phonemic skills. More experience in spelling will provide students with a more conventional manner of spelling.

Speech problems with young children can cause a great source of anxiety for parents wondering if their child is normally developing. Stuttering, inability to pronounce some sounds, restarting sentences, and stumbling over words are all very typical and common errors for preschool speech. Researchers have identified the approximate ages at which various sounds are spoken accurately. This information is often presented in developmental charts that caregivers, teachers, or parents use to assess phonological development (Table 1).

Children at an older age that cannot pronounce many early acquired speech sounds may be at risk for serious speech delays. Children that make irregular substitutions such as pouncing *rabbit* as *abbit* may also be at risk. Continual stuttering, especially at an older age is a true disfluency that can be caused by physiological issues and may be a hereditary condition. Preschoolers are most likely recommended for evaluation and speech therapy when teachers, caregivers, and parents cannot understand them. In deciding if a speech challenge should be

Phonological Development. Table 1 Typical order of acquisition of specific speech sounds for girls and boys

Age of acquisition	Girls	Boys
3 years	P, b, m, w, d, n, k, g, h, ng	P, b, m, h, w, d, n, k, t, g
4 years	l	ng
5 years	J, y	y
6 years	Sh, ch, r, zh, f, wh	Zh, wh, j
7 years	S, z, th, v	F, l, r, ch, sh, s, z, th, v
7–9 years	Bl, br, dr, fl, dl, kr, pl, skw, sl, str, tr, pr, other blends	Bl, br, dr, fl, dl, kr, pl, skw, sl, str, tr, pr, other blends

addressed, one should evaluate to what degree a child can communicate. If a child is communicating well, intervention should be postponed.

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Phonological Disorders

Synonyms

Articulation disorder; Developmental phonological disorders; Speech sound disorders

Definition

A group of disorders where individuals fail to use appropriate speech sounds for their age and dialect.

Description

Children often make some speech errors as they learn language, and certain speech errors are typical at different developmental ages; therefore, age and severity are important to note during assessment. There are a number of speech errors that are common to phonological disorders, including omissions, additions, distortions, and substitutions. Phonological disorders interfere with academic and occupational achievement, as well as social communication. The causes of phonological disorders are structural problems with the main speech mechanisms, neurological problems that can cause fine motor problems with speech muscles, and unknown causes. Only about 3% of children present with phonological disorders of unknown origins. Further, phonological disorders are predominantly found in males. Speech difficulties may also be associated with mental retardation, hearing impairments, and severe environmental deprivation. If these conditions are present, the speech problems need to be in excess to those usually associated with the disorder to make a diagnosis of phonological disorder.

Speech-language pathologists (SLPs) evaluate phonological disorders by listening to the individual's speech and may use a formal articulation test to record speech errors. Further, an oral mechanism examination is used to assess whether the individual's mouth muscles are functioning properly. Speech-language pathologists have a number of treatment procedures to help improve articulation and reduce speech errors. Many of the treatments involve demonstrating how to produce the correct sound, helping individual's recognize correct and incorrect sounds, and practicing the sounds.

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Phonological Learning

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Synonyms

Phonological awareness; Phonological coding; Phonological processing

Definition

The term phonological is derived from the Greek root phone, which means voice or sound. Phonological learning refers to the science of phonemes (speech sounds).

Phonemes are the smallest unit of speech. Phonological learning refers to acquiring the system of speech sounds of a language through phonological awareness, phonemic awareness, phonological coding, and retrieval of phonological codes [13].

Description

Phonological learning involves becoming aware of sounds of spoken language (phonological awareness), holding that information in working memory (phonological memory), accessing phonological information, retrieving that information (retrieval of phonological codes), and making associations between sounds and printed symbols (e.g., alphabetic letters). A hierarchy of phonological awareness skills consists of (1) rhyming, (2) alliteration, (3) blending, (4) segmentation, and (5) manipulation. In 1998, the International Reading Association distinguished between the terms phonological awareness and phonemic awareness. Phonological awareness involves identifying and manipulating larger units of speech than the individual phoneme (e.g., words, syllables, onsets, and rimes). This was considered to be easier than phonemic awareness, which involves identifying and manipulating individual speech sounds (phonemes). Across phonological skills, recognition of sounds has been found to be easier than production of sounds [14]. Rhyming is considered to be the most basic phonological awareness skill, and it involves having children recognize words that sound alike, categorize words that share common sounds, detect words that do not share common sounds (e.g., oddity tasks), and produce words that sound the same as other words. Alliteration involves having children identify initial sounds in words by recognizing the beginning sounds in words, categorizing words according to the same beginning sound, deciding whether two or more words have the same beginning sound, and producing the beginning sound of a word,. Blending refers to *stringing* individual sounds of words together to produce part of a word (e.g., /sl/ -/i/-/p/ or a whole word (e.g., /sl-i-p/). Segmentation refers to becoming aware of the sequence of sounds in a word, identifying each sound segment in a word, and saying each sound segment in a word. This skill progresses from segmenting syllables to individual sounds in a word by clapping to each syllable or individual sound in a word as each sound is orally produced and by breaking the sounds of a word apart and saying each syllable or every individual sound of that word. Manipulation of phonemes consists of deleting (e.g., removing the /c/ in the word /cup/ and left with the word /up/, substituting (e.g., removing the /c/ and replacing it with the /p/ sound to make another word /pup/, and reversing individual sounds in words to form new words (reversing the word /top/ and saying the word /pot/. When students recognize, produce, and manipulate the sounds of spoken language, they likely go through a process of holding those sounds in memory so they are likely to rapidly retrieve them again. This is likely to occur when children are provided with ample opportunities to engage in phonological awareness exercises. Moreover, it has been reported in seminal studies that early training in phonological awareness has been predictive of reading decoding and spelling achievement in the primary grades (e.g., [2, 11]).

Phonological awareness has been found to assist children with acquiring the alphabetic principle which involves recognizing that each letter corresponds to each basic sound in speech as well as making letter-sound connections [1]. In other words, an awareness and manipulation of sounds in spoken language leads to making associations between letters and sounds in written language. This is also referred to as *phonics*. Among phonological awareness skills, phoneme segmentation is the best predictor of word recognition for primary grade children [7]. When children begin making correspondences between letters and sounds, they may go through a process referred to as *phonological recoding* as they learn to decode words that are a part of their spoken language repertoire [10, 14, 15]. Initially, children decode words in a one-to-one sequence fashion (e.g., /s/-/i/-/t/) and then progress to making hierarchical decoding of words which involve looking at standard letter-sound spelling patterns of words (the *orthography* of language) and using a letter or letters in a word to cue the sounds of another letter or other letters in a word (e.g., using the letter *e* in the word *site* to cue the long /i/ vowel sound or using the vowel combination of *ea* to cue the long /e/ sound in the word *seat* [6].

Relevance to Childhood Development

Four levels of developing phonological awareness consist of (1) becoming aware of speech flow as a collection of individual words; (2) distinguishing syllables in spoken words (3) recognizing and producing onset and rimes (4) becoming aware of phonemes in words [5]. These basic phonological awareness skills such as rhyming, alliteration, syllable segmentation can be evident in children as young as 2 or 3 years old. More advanced phonological awareness skills such as segmenting individual sounds in words, blending sounds in words, and manipulating sounds in words are observed in children during kindergarten, first, and second grades during formal schooling. These skills are critical because they have been found to be precursor skills to reading and spelling words with ease [2].

The relationship between learning phonological skills and learning how to read and spell is also a reciprocal one of children acquiring some phonological skills to help them learn to read and spell and engaging in reading and spelling activities frequently to enhance their phonological skills [3, 4, 9]. Many children who have been identified as having a specific learning disability or who have been referred as dyslexic have phonological processing problems [3, 12].

Many young children may learn phonological skills at home especially if they have resided in homes where their caregiver(s) engages in elaborate verbal interactions with them as well as reads with them often and discusses the words and events in the stories they are reading. Even though many young children have been given these rich early language and literacy experiences and are emerging as developmentally expected in their literacy skills, they find it challenging to conceive of spoken words as comprised of individual sounds. This is especially the case for children who have not had rich early language and literacy experiences at home. It is for these reasons that educators cannot assume that children have learned phonological skills. Therefore, educators need to teach children phonological skills in an explicit and systematic fashion [8]. Most preferably, explicit and systematic instruction on phonological skills should begin as early as preschool and continue well into the early primary grades (i.e., kindergarten, first, and second grade) so that children eventually read words effortlessly rather than laboriously in subsequent grades. There are several scientifically supported methods and programs that school districts and educators can adopt for teaching phonological skills to children. In general, teaching phonological skills explicitly means breaking down the tasks of teaching phonemes into parts. For instance, the teacher may begin by presenting each sound of a word in isolation to the students and providing them with many opportunities to practice each sound by incorporating multiple activities/lessons before moving onto the next sound. This may be followed by asking children to discriminate one sound they learned from the other sound that they learned. Eventually, the teacher will teach the students to say all sounds together in a given word. In subsequent grades, phonological skills can be reinforced and embedded within formal school curriculum to ensure that students retain these skills.

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Phonological Loop

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Synonyms

Articulatory loop; Phonological short term memory

Definition

A component of working memory that deals with auditory or verbal information. It consists of two parts: a short term store of phonological information and an "articulatory rehearsal" process that functions to help maintain the information.

Description

Baddeley [1] describes the phonological loop as part of working memory; together with the visuospatial sketchpad, episodic buffer, and central executive. Essentially, all auditory or verbal information is immediately entered into the phonological store, where it will be maintained for 1–2 s. The articulatory rehearsal process helps maintain information in the phonological store through subvocal rehearsal of the information. This process also allows visual input access to the phonological store, provided it can be converted to phonological information and subvocalized.

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Phonological Processing

►Phonological Learning

Phonological Sensitivity

►Phonological Awareness

Phonological Short Term Memory

►Phonological Loop

Phonology

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Definition

The part of language involving speech sounds, including pronunciation, fluency, and intonation.

Description

Phonology is one of the four components of language, the other components being semantics, syntax, and pragmatics. During the early years of life (birth to 5 years of age) children's language develops gradually. One fundamental way that children's language develops in the preschool years is that they begin to produce speech sounds more clearly with improved fluency and intonation [3]. There are approximately 30 speech sounds in the English language and remarkably children acquire the rules for producing most of these sounds within the first 5 years of life and the more complicated blends by age 9!

Relevance to Childhood Development

The ability to communicate effectively is a foundational skill that most typically developing children accomplish with little trouble. The area of phonological development is no exception. Children seem to acquire speech sounds rather effortlessly and most often communicate their wants and needs effectively.

There is a fairly typical sequence for acquiring speech sounds with some slight variations in acquisition by gender. While it may appear that phonological development is easy, the production of some speech sounds requires the combination of various parts of the body (e.g., the tongue, the teeth, the lips, the roof of the mouth, the vocal cords, and even the lungs). The developing child must coordinate all of these body parts in harmony to produce a single sound. Quite a remarkable feat by any standard! One theory for how children accomplish this task is that they hear acceptable sounds and sound patterns repetitively in the words used most frequently in their language. It is believed that the first 100 words or so that most children learn, will contain almost all the key sounds of their language [2, 3]. As they hear and learn words, they are also learning the rules for how making sounds and sound combinations.

While most children acquire speech sounds easily, some children may struggle. The most common phonological challenges revolve around poor articulation of speech sounds. Children should acquire the sounds of *p*, *b*, *m*, *w*, *d* by age 3 [2]. If a 5 year old has difficulty producing the b sound, there probably is some sort of delay and a speech therapist may need to be consulted. Another common delay in phonological development is the substitution of one sound for another. When children substitute *w* for *r* or *d* for *th*, they are usually still understood. However, when a child substitutes a *d* for *r*, there is usually confusion on the part of the listener. Children who use these irregular substitutions are at greater risk for future speech delays.

Finally, children who have phonological disfluency, such as single-sound disfluency (e.g., b-b-b-b-b-ball), repetitive words ("the ball. . . .the ball. . . .the ball. . . ."), or long pauses between phrases may suffer from some type of speech delay. If these phonological disfluencies hinder communication between the preschooler and parents, teachers, caregivers and peers, a speech and language evaluation should be implemented in an effort to lessen the effect on the social and emotional development of the child [4].

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Phototherapy

►Bilirubin Lights

Phylogenetic Equivalents

►Age Equivalent

Physical Abuse

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Synonyms

Battered child syndrome; Child abuse; Harsh discipline; Physical punishment

Definition

A non-accidental physical injury a child sustains at the hands of an adult, usually stemming from attempts at discipline.

Description

While definitions of abuse vary by locale, in general, most states advocate a definition similar to this one: a non-accidental physical injury a child sustains at the hands of an adult, usually stemming from attempts at discipline [2]. Many states also include a length of time the injury must last, such as 24 or 48 hours. States also include a "risk of harm" clause to allow children at risk of physical abuse to be removed from harmful environments before abuse occurs [3].

Physical abuse often occurs during stressful situations like discipline periods. The child is usually punished by an angry parent and this corporal punishment escalates into abuse resulting in injury [6]. Serious injury and death can result when adults do not realize the strength difference between themselves and children. Approximately 1,400 deaths occur in the U.S. each year from abuse neglect and about 14,000 children are seriously injured. While about 900,000 cases are substantiated each year in the United States, because most cases are never reported, it is estimated that millions of children each year are victims of maltreatment [1, 5, 6]. Risk factors such as poverty, lack of education, being a single parent, alcoholism, other drug use, and a history of abuse increase the probability of a person harming a child [1].

Indicators of child physical abuse include broken bones that cannot be explained or are unusual, bruise marks that have patterns such as fingers, hands, or belts, bruises that are not in typical areas where normal childhood activity causes bruising (i.e., knees), burns of various types including burns to the hand or foot (called "sock" and "glove" patterns), cigarette burns, radiator or burns from other hot objects, bite marks, black eyes, choke marks, circular marks often found on the wrists or ankles that indicate twisting or tying up, and unexplained abdominal injuries [6].

The effects of abuse on children include poor self image, acting out, school problems, flashbacks, nightmares, sleep problems, drug and alcohol abuse, feelings of sadness, depression, withdrawn or clingy behavior, anger and rage, self destructive tendencies, or aggressive and disruptive behavior [1, 6]. If the long term effects of abuse are to be minimized, identifying and treating problems early on is crucial [6]. Every state has laws regarding reporting child abuse and whom they identify as mandated reporters. Mandated reporters are required by law to

report suspected cases of child abuse. Some of these professionals include: teachers, social workers, doctors, childcare providers, medical examiners and coroners, law enforcement officials, bus drivers, coaches, and mental health professionals [4].

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Physical Aggression

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Synonyms

Antisocial behavior; Assault; Fighting; Overt aggression; Physical bullying; Violence

Definition

Physical aggression is behavior causing or threatening physical harm towards others. It includes hitting, kicking, biting, using weapons, and breaking toys or other possessions.

Description

Developmental Course

Most children display their highest levels of physical aggression in toddlerhood and show a decline in these behaviors with age. Physical aggression seems to be present as early as 12 months of age in at least half of children, and shows a normative increase in the second year of life that persists through the third year and begins to decrease around age 4 years [1]. In fact, research generally shows four distinct trajectories of physical aggression. In the two most common trajectories, making up as many as 80% of children, physical aggression is either high or moderate early on and declines to a low or almost zero level. A third trajectory includes children who consistently engage in almost no physical aggression. The smallest group is that of children on a fourth trajectory. Those on this trajectory engage in higher levels of physical aggression than their peers and continue to engage in this high level consistently over time [2].

An important characteristic of physical aggression is its fairly high level of stability throughout development. Those who are highest in aggression in early childhood continue to be highest into adolescence [2]. In fact, 1 year stability coefficients have been shown to be high in children as young as 24 months old [1].

Gender differences in levels of physical aggression appear to emerge in the second year of life. Although boys and girls show similar levels of physical aggression in infancy, boys generally surpass girls at 2 years of age and later [1]. Although some girls do engage in levels as high as those of boys, the percentage of boys in the highly physically aggressive group is greater than that of girls in this group [2, 14].

Types of Physically Aggressive Behavior

Generally, aggressive behavior is defined and assessed in a quite vague manner. It is often grouped not only with other forms of overt (e.g., verbal) and covert (e.g., relational) aggression, but also with other forms of antisocial behavior that may not be particularly physical in nature. When it is separated from non-physical aggression, researchers often fail to assess for the particular nature of the physically aggressive behavior. Two major types of aggressive behavior have been described in the literature. *Proactive aggression* refers to goal-directed behavior in which the aggressive child is generally unprovoked by others. *Reactive aggression*, on the other hand, is engaged in when a child is angry and provoked by others [4]. The difference between these types of physically aggressive behaviors may be important in the understanding of processes underlying aggressive behavior and in the development of interventions targeting that behavior. Unfortunately, these types of aggression are often distinguished only in theoretical models.

Predictors of Physical Aggression

Several factors are correlated with childhood aggression at the individual, family, peer, and societal level. Biological factors play a role in childhood aggression at the individual level. Temperament, a characteristic said to be inborn and identifiable in infants, is one of the earliest individual correlates of aggressive behavior. Difficult temperament, associated with a set of problems including difficulty soothing and adapting to the rhythm of social interactions, has been consistently associated with more chronic aggressive behavior [8]. Evidence also suggests that a number of other biological processes, including heart rate, neuroendocrine levels, and skin conductance, play a role in the development of physically aggressive behavior, presenting a picture of these children as chronically underaroused at a basal level [15]. This is consistent with proactive aggression, in which children may be seeking arousal through engaging in aggression without provocation from others. More consistent with reactive aggression, physically aggressive children seem to show heightened cortisol levels during stressful situations [9]. It may be that those children who are the most physically aggressive demonstrate both proactive and reactive aggression, with unique processes underlying each.

Family factors, particularly maternal characteristics and mother–child interaction, are among the most consistent predictors of aggression. Family conflict and maternal hostile parenting appear to be the strongest of these family factors [6, 12, 14]. They have been shown to be associated with physically aggressive behavior even into adolescence, and their key role highlights the risk for the establishment of a coercive family pattern in which antisocial behaviors are learned and reinforced. Children who are at high risk for engaging in chronic physical aggression are also those whose mothers began childbearing early, have low educational attainment, low income, high depressed mood, or smoked during pregnancy [10, 12, 14]. These parents appear to have particular difficulty teaching their children to regulate the physically aggressive behavior that is common in toddlerhood. There is also evidence that mothers of physically aggressive children themselves engaged in high levels of antisocial behavior during their school-age years, providing some support for an intergenerational transmission of such behavior from mother to child [14].

Socialization factors, including those within the peer group as well as larger neighborhood effects, also play a role in physically aggressive behavior. Research suggests that antisocial children not only tend to select more antisocial friends, but also tend to engage in more antisocial behavior over time when they are a part of such peer groups. A process of mutual socialization appears to occur in which children model antisocial behavior for their antisocial friends and receive reinforcement for this behavior in turn [5]. Furthermore, modeling and reinforcement of physically aggressive behavior is likely occurring at a larger neighborhood level. Neighborhoods with the most physically aggressive children are those in which mothers report that high levels of antisocial behavior occur on a regular basis [12].

Models of Physical Aggression

Although research has been relatively consistent in identifying a number of correlates and predictors of physically aggressive behavior, the processes behind the development of this behavior are less clear. Understanding how it is that such behavior may develop and persist in particular individuals is important for interventions targeted towards decreasing problem behaviors. A number of theoretical models stemming from findings in the area of predictors suggest some potential processes through which physical aggression may develop.

Two related theories of physically aggressive behavior exist that follow from the findings on biological correlates. First, the fearlessness theory suggests that low levels of arousal at a resting state, as have been found in physically aggressive children, are indicative of low levels of fear. Infants and children with low levels of fear may in turn be more likely to approach novel situations and thus more prone to behave aggressively due to a lack of fear surrounding provoking situations. The stimulation-seeking theory is another way of explaining a link between low levels of arousal, approach behavior, and aggressive behavior. This theory suggests that individuals with low levels of arousal are likely to seek out the arousal that they lack by engaging in novel situations. As such, they may be more likely to engage in provoking situations that would elicit aggressive behavior [15]. These models match up well with findings on the biological correlates of physically aggressive behavior and suggest potential targets for interventions (e.g., training on an understanding of the potential consequences of one's actions or redirection towards more appropriately stimulating activities).

Another influential model, Crick and Dodge's [3] social cognitive information processing model, proposes that aggressive children display deficits and distortions in their social cognitive processing that lead to such aggressive behavior. Crick and Dodge [3] proposed that during any social interaction, six steps contribute to a behavioral response including the encoding of internal and external cues, the interpretation of cues, the elucidation of goals, the construction of a response, a response decision, and

the behavioral enactment of that decision. The behavioral response is influenced at all of the six stages by memories of past experiences, rules that the child has learned about that situation and behavior, social schemas, and social knowledge. Aggressive children are said to display a hostile attribution bias in which they misattribute hostile intent to peer provocations that are ambiguous in nature. For example, an aggressive child who is bumped in the hallway is likely to assume that the other child purposely bumped him or her and in turn engage in physical aggression to retaliate. Aggressive children also tend to display a selective attentional bias in which they attend to aggressive environmental cues more often than nonaggressive cues, ultimately making use of fewer cues to guide their behavior. Finally, aggressive children tend to endorse primarily aggressive and fewer assertive solutions to social problems and expect that these aggressive solutions will lead to positive outcomes and rewards [4].

A model suggesting more fundamental executive functioning deficits also exists to explain the process through which physical aggression develops. Executive function refers to processes through which individuals self-regulate their thoughts, emotions, and behavior. It includes such cognitive abilities as working memory, planning, self-monitoring, problem-solving, and response inhibition. This model is based on the finding that physical aggression begins to decline for most children in the late toddler years, the same time during which major developments in executive functioning have been shown to occur. It suggests that physically aggressive children do not make the expected gains in executive functioning, particularly working memory, during early childhood. Although there has been less empirical examination of this hypothesis in young children, executive functioning certainly appears to be more clearly linked to physical aggression in adolescence and young adulthood than does general cognitive development [13]. This model is also supported by the finding that hyperactivity and opposition in kindergarten, behaviors that are often linked to executive functioning deficits, are both powerful predictors of chronic physical aggression [10].

Relevance to Childhood Development

Physically aggressive children are at risk for a number of negative outcomes throughout childhood and into adolescence. It is clear that physical aggression is a strong behavioral predictor of peer rejection in childhood. Peer rejection, in turn, is related to a host of negative outcomes in childhood and adolescence including depression, loneliness, delinquency, and school dropout [7]. Children who are both aggressive and rejected appear to be at the greatest risk for poor psychological adjustment. At the same time, however, physical aggression is an independent predictor of these same internalizing and externalizing difficulties. Chronic physical aggression in elementary school predicts to continued physical violence, school dropout, and contacts with police in adolescence [2, 7].

Not only are aggressive children more rejected than their non-aggressive peers, they also tend to be more victimized physically and relationally by their peers. It may be that those individuals who are physically aggressive towards their peers are also physically victimized as retaliation (e.g., bully-victims). Those peers who fear physical attacks from the aggressive child may use relationally aggressive strategies to avoid and exclude the aggressive child from the peer group. As such, the aggressive child is both physically and relationally victimized by his or her peers, which in turn can lead to further internalizing and externalizing difficulties and associations with deviant peer groups [11].

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Physical Bullying

►Physical Aggression

Physical Discipline

►Corporal (Physical) Punishment

Physical Punishment

►Corporal (Physical) Punishment
►Physical Abuse

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Life Dates

1896–1980

This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

Educational Information

Piaget earned a Ph.D. in natural sciences from the University of Neuchâtel in 1918.

Accomplishments

A precocious child, Piaget displayed an avid interest in natural science, publishing several research papers prior to graduation of high school at the age of 15. He then attended the University of Neuchâtel, where he earned both his bachelor's and doctoral degrees. He developed an interest in psychology and human development at this time, and completed his post-doctoral training at both the University of Zurich and the Sorbonne in Paris. It was here, as well as in his experiences supervised by Theodore Simon (1872–1961) in a Parisian boys' school established by Alfred Binet (1857–1911), that he began to formulate the ideas he would pursue throughout his unusually long and rich scientific career.

Piaget, influenced by both natural science and philosophy, envisioned human development as occurring in distinct stages that would unfold in an unvarying progression given a nurturing environment. Different stages would exhibit uniquely distinct cognitive styles of explaining the world. The focus in Piaget's theorization was clearly the intellectual development of the child, at the relative expense of studying socialization. This also set Piaget apart from other stage theorists such as Sigmund Freud (1856–1939) and Erik Erikson (1902–1994), who offered theories based on emotional development.

Piaget is best-known in psychology for his theories on cognitive development. However, Piaget's contributions to the social sciences are far more extensive than that typically recapitulated in developmental psychology textbooks. He conceptualized a model of moral development that, while simple compared to his model for cognitive development, would provide the basis for the career-spanning explorations of Lawrence Kohlberg (1927–1987). His research techniques of carefully structured clinical interviews coupled with methodical recording of descriptive data influenced sociology's research methods; it is for this reason that when Piaget was brought to Harvard for an honorary degree in the 1930s, it was for his contributions to sociology. His investigations into domain-specific areas such as the development of mathematical ability had clear educational implications. In sum, Piaget can be best thought of not only as the premier cognitive stage theorist but also as a grand intellect spanning and influencing multiple areas of expertise.

Piaget published more than 50 books throughout his career, making him one of the most prolific authors within psychology. Representative books include *Language and*

Thought of the Child (1923) [8] and *The Child's Conception of Physical Causality* (1927) [6]. Piaget also had a fruitful life as an educator. He served various posts as a professor at the University of Geneva from 1929 until 1980, including Professor of Sociology, Professor of Experimental Psychology, and Professor of the History of Scientific Thought. He also was a professor at both the University of Lausanne and Sorbonne. Simultaneously to his teaching positions, he also served as the Director of the International Bureau of Education, the Director of the Institute of Educational Sciences, and the Director of the International Centre for Genetic Epistemology (all in Geneva). He received honorary doctorates from well over 30 different Universities, including Harvard and Cambridge. On the global stage, Piaget was involved with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in the late 1940s and 1950s, participating in conferences as a children's advocate and even serving as the president of the Swiss Commission to UNESCO.

Contributions

Piaget's life work represents one of the cornerstones of cognitive psychology, and his influence within the fields of child development and education are indeed vast. While Piaget's theories have been supplanted by an array of information-processing models, and stage theory is no longer of central importance in contemporary developmental psychology paradigms, it is important to remember and appreciate the crucial role Piaget's work in providing developmental psychology one of its grand scale theories. Piaget defined developmental psychology in the same way that Freud defined clinical psychology and that Skinner redefined behavioral psychology. He provided a powerful centrifugal force that not only shaped how generations of psychologists viewed the world, but also stood in sharp contrast to his immediate predecessors. Despite the fact that Piagetian theory is no longer the dominant one pursued by active developmental researchers, mastery of the basics of Piagetian theory is still essential for students of developmental psychology, and textbooks still devote significant space (sometimes whole chapters) to the man and his work.

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Piaget's Cognitive Development Theory

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Definition

Jean Piaget's theory of cognitive development in children conceptualizes the process of children's intellectual growth (learning) from a biological perspective.

Description

Piaget's theory is founded on genetic epistemology. His theory is the result of intense investigation, specifically focusing on the nature and timing of events in life, by observing children engaging in specific tasks developed by Piaget. From his qualitative research Piaget proposed a framework of cognitive development in four specific stages. The four stages are: sensorimotor, preoperational, concrete, and formal. Each stage is associated to specific years in a child's life and identifies elements that occur within the framework of these years.

Sensorimotor

Sensorimotor stage (birth–2 years) is the period of a child's life when learning occurs through interaction, specifically senses and motor skills, with the physical environment. Piaget called these interactions "circular reactions," providing three separate reactions relative to age within the stage. These circular reactions are primary, secondary, and tertiary. Primary circular reaction (1–4 months) is the time when the child is stimulated by his/her own action, such as sucking of the thumb or blowing bubbles, and if the same action is repeated the same response is achieved. Secondary circular reactions occur between 4 and 12 months. This is

the time frame when a child becomes aware that a continual stimulus can be experienced when interacting with the environment. Also during this time frame, children begin to understand that although an object leaves their line of vision it does not indicate the object is gone. This is also known as object permanence. Between 12 and 24 months, the child now understanding that through partaking in action, within different conditions, the same stimuli is created but with variation. Around a year and a half, a child begins to demonstrate the ability to hold a mental image beyond an immediate event, otherwise known as mental representation. A child also develops the ability to solve simple problems indicating the child is using mental combinations. Deferred imitation, the ability to remember an experience and reenact it after time has past, is also seen during this stage. At the end of the stage, children begin to pretend. Instead of using a toy as more of an object which provides stimulus, the toy now becomes associated with life experiences.

Preoperational Stage

The second stage is the preoperational stage (2–7 years). During this stage, children begin to use symbols, conceptualization of time (present, past, and future) and the progression from centrism to de-centrism. The ability of a child to use symbols indicates that he/she is capable of taking an item and allowing it to represent something else. For instance, a common example is the written language. However, in relation to children, creative play is a good example. Children who partake in creative play, for instance, replacing checkers for animal crackers or using a log as a seat, demonstrate they can take an object, understanding the literal identity of the object and change it for their individual purpose. Children also develop the understanding of time in relation to past, present and future events; thus, a child is able to take events from the past and relate them to a present situation. For instance, a child, learning how to ride a bike that has had an accident, can indicate the understanding of "hurt" within a future context even though the event occurred in the past. Another example is children demonstrating an understanding when told that their parents will return within a specific timeframe.

In addition, it is a time of life in which the child is egocentric. A child believes his/her point of view or conceptualization of an event or idea is solely correct; thus, this egocentrism influences how a child interacts and communicates with others. Throughout most of the stage, a child will demonstrate centrism. Centrism is the focusing of one aspect of an issue due to the inability to look at the concept from a broader understanding. For instance, children when asked if they live in the United States will respond no and provide the state in which they reside. Another example is when blocks in a specific color but in various shapes are shown to a child. The child is only able to group the shapes by color and do not recognize that the blocks can also be grouped by shaped. However, it is when a child is able to move beyond the focusing of one concept and demonstrate the ability to consider and understand multi-levels of a concept that the child demonstrates decentrism, indicating cognition development to a higher stage. In Piaget's theory, it is the progression to the concrete operations stage.

Operational Stage

The concrete operational stage (7–11 years) is the time when a child begins to relate to information logically, also known as operations. A child also demonstrates conservation and reversibility. Conservation is the ability to understand although something may change in appearance the quantity remains the same. For instance, if a child is shown five sticks of gum in a row and than the same pieces remain in the same row but distance between gum pieces is increased, the child conceptualizes that there are only still five sticks of gum regardless of distance between them. Reversibility is when the child realizes that an object is capable to go back to or close to its original appearance. A child who takes a ball of play dough and creates a flower with it, realizes that if the flower were to be put into a ball of play dough again it would resemble the previous ball of play dough. Two other concepts children learn during this stage are classification and seriation. Classification is the ability to recognize more than one way to organize a group of objects. For instance, go back to the previous example of block colorization. When a child is able to classify he/she not only recognizes the color of the blocks but also the blocks are different shapes in which both can be organized into groups. Seriation is the ability to organize items in a sequential order such as size or weight.

Formal Operational Stage

Formal operational (11–15 years) is the final stage of Piaget's theory. It is at this level in which children demonstrate the ability to engage in abstract thinking, using skills such as deductive and hypothetical reasoning. It is during the these years that adolescents learn and begin to solve complex problems through cautious and systematic processes, share and propose their own ideas and concepts as well as go through the process of evaluating their opinion being proposed. In addition, it is during these years that sets the foundation for identity formation, the understanding of others psychological experiences and

perspectives, and the ability to consider different views and relative of importance in decision making. Beyond the age of 15, Piaget believed that cognitive development is gradual and incremental.

Organization and Adaptation

Piaget theorized that children are able to transition from one stage to the next due to two complementary processes, organization and adaptation. Each process consists of relative elements. Schema is the element relative to organization. Two elements exist in the adaptation process, assimilation and accommodation. Organization is the natural, systematic arrangement of mental structures of associated and interconnected information. Schema is the mental structures of set of associated perceptions, ideas, and/or actions used to interpret experiences. There are three types of schemata: behavioral, symbolic, and operational. Behavioral schema is the most basic and first mental structures created. It is schema that is present from birth (sensorimotor stage). Symbolic schemata are the mental structures that represent an object or action. This schema emerges at the age of 2 years of age (preoperational stage). At the age of seven (concrete operational stage), operational schema develops. Operational schemata are mental structures created through logic in relation to objects and experiences.

Piaget believed that individuals have a desire for a state of cognitive equilibrium; thus, when disruption occurs, individuals will strive to return to a balanced state. Returning to a state of equilibrium is achieved through the process of adaptation. Adaptation is the adjusting or changing of schemata relative to the environment. Assimilation is when new concepts are introduced and incorporated into pre-existing schemata specific to the external environment. For instance, a child has an over all understanding of the concept of insects but when a specific insect, such as an ant, is introduced, the ant now becomes a part of the insect schema. Accommodation is the modifying of pre-existing schemata or the creation of a new scheme which occurs due to new experiences. For example, a child, who has a schema for an ant in an artificial environment, is exposed to an ant colony outdoors. The child now modifies or creates a new schema relative to the ant in the outdoors such as learning an ant lives in a colony. Assimilation and accommodation influence one another. As assimilation occurs, mental structures are accommodated and vice versa.

Relevance to Childhood Development

Piaget's theory can be understood simply as an invariant approach of maturation, a natural, biological drive, of how child learn; thus, it is a process in which children progress through at the same age regardless how a child's capability and brightness. Cognitive development occurs due to explorations and experiences that begin as egocentric processes and transition into social ones. Piaget's concepts have been and continue to be a major influence on the research of children's social and emotional development as well as the advancement in the creation and implementation of educational best practices. In the end, it is the driving theory in which the discipline of cognitive development psychology is founded.

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Piaget's Preoperational Period

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Synonyms

Piaget's preoperational stage

Definition

The preoperational period refers to the second stage (2–7 years) in Jean Piaget's theory of cognitive development which spans toddlerhood, preschool and early school ages. This stage is characterized by the child's beginning to use symbols, understanding tasks of conservation and showing progressions from centrism to decentrism and from egocentric thinking to perspective taking. Piaget defined his preoperational stage into two substages: the preconceptual stage (2–4 years) and the intuitive stage (4–7 years) [1, 2].

Description

Piaget's preoperational period is marked by the accomplishment of several cognitive tasks occurring in the preconceptual and intuitive substages. These core abilities dictate how the young child interacts with and makes meaning in their world.

Symbolic thinking is a hallmark of this stage. According to Piaget, a child in the preoperational stage is capable of taking an item and allowing it to represent

something else. The use of symbols can be seen in milestones that are typical during these ages. For example, the preoperational child will begin to use words, images and gestures to represent objects and events in the world [2]. During the preconceptual stage, the emergence of symbol use occurs with the rapid acquisition and development of language, imaginative play and deferred imitation of activities occurring around them. With symbolic functioning, the child quickly becomes proficient in understanding and using language. In a reciprocal process, the child is also increasingly able to solve problems and learn from the language of others. Similarly, symbolic functions are also postulated to be integrated into play. With the ability to use symbols, children also begin to develop an understanding of time. Children in this age group are developing an understanding of events in terms of past, present and future and can thereby, for example, relate past events to present situations [3, 4].

Despite the advancing cognitive development of the 2–4 year old child, thinking occurring during the preconceptual stage is marked by egocentrism. A child at this age believes that only his/her point of view is solely correct and has difficulty taking the perspective of another person. In fact, the egocentrism of this age has an effect on how the child will interact and communicate with others [2, 4].

As the child develops and cognitive processing becomes more complex, these are changes in the child's thought processes involving things such as understanding of relationships, numbers and classifications. This is the mark of the intuitive stage. During this developmental substage, the child uses mental operations such as classification or quantification. However, they are not aware of the principles used to perform the operations. Thus the preoperational child can solve problems but cannot explain the principles underlie the operations that they have used [1–3].

Another important skill that is acquired during the pre-operational period is conservation. To be successful at conservation, the child must recognize that even when an object's appearance is altered that the object's basic attributes remain the same [1, 4]. For example, the preoperational child would have difficulty accepting that a tall thin glass of juice that looks full is the same quantity as an equally tall but broader glass that looks only half full.

Conservation is a very difficult concept for the preoperational child and is closely related to their difficulty with perspective taking/egocentrism. First, the child does not have the ability to grasp the idea of reversibility (the notion that one can mentally reverse or undo a given action). The preoperational child also tends to focus on the end state of an action as opposed to the process by which the change occurs. Finally, the developing child may be expected to display centrism, thus leading them to focus their thinking and attention on only one aspect of an object or situation [1–3].

In Piaget's theory, when a child is able to move beyond focusing on one concept and demonstrate the ability to consider and understand multi-levels of a concept then the child demonstrates decentrism, indicating that cognitive development has progressed to the concrete operational stage [1, 4].

A final phenomenon of preoperational thinking is horizontal decalage. This time lag refers to the uneven nature of the child's abstraction abilities for understanding conservation of particular objects, substances or qualities. This explains why the child may develop logical abilities about one type of conservation task but may lag in their understanding of conservation in other areas [1, 2].

Relevance to Childhood Development

Jean Piaget's theory of cognitive development is one of many models of cognition in childhood. His preoperational stage of development describes the child's cognitive development from 2 to 7 years of life in terms of two stages through which every child is hypothesized to progress. While Piaget's states are yoked to an age range, the actual age of the child is seen as less important than the order in which these tasks are accomplished. Additionally, Piaget's theory generally describes development as smoothly progressing between qualitatively different stages. However, recent work has demonstrated that development involves a gradual and inconsistent movement between cognitive processes. For instance, individual and cultural differences may alter the path of cognitive development and lead to comparable cognitive outcomes. While the validity of Piaget's stage theory of development has been disputed by recent theorists, his observations and ideas have considerably shaped the field of cognitive development and inspired more recent theorists [1–3].

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Piaget's Preoperational Stage

►Piaget's Preoperational Period

Piaget's Sensorimotor Period

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Synonyms

Piaget's sensorimotor stage; Sensory motor stage

Definition

The sensorimotor period refers to the earliest stage (birth to 2 years) in Jean Piaget's theory of cognitive development. This stage is characterized as the period of a child's life when learning occurs through a child's sensory and motor interactions with the physical environment. These interactions are known as circular reactions and are a means of building schemes in which infants try to repeat a chance event caused by their own motor activity [1]. Piaget separated his sensorimotor period into six sensorimotor substages: reflexive schemes, primary circular reactions, secondary circular reactions, coordination of secondary circular reactions, tertiary circular reactions, and mental representations [1–4].

Description

Reflexive schemes is the substage that occurs from birth to 1 month of age and is a period of development in which newborns automatically respond to particular forms of stimulation [1, 4]. Reflexes include those such as the sneeze or the Moro response (i.e., specifically infantile startle pattern) that are not cognitively relevant [2, 4]. Other reflexes, such as sucking, eye movements, and movements of the hand and arm undergo developmental change in later substages. Piaget conceived these initial reflexes as infants' first sensorimotor schemes through which they begin to learn about the external environment [1]. For example, if you place a finger in an infant's hand and press against his/her palm, he/she will spontaneously grasp the finger. In later substages of sensorimotor development, infants will learn to grasp other objects and begin combining schemes to learn about these objects.

Around 1–4 months of age, infants enter the second substage of *primary circular reactions*. At this stage, infants start to gain voluntary control over simple motor habits centered on their own body [1]. Infants also begin to demonstrate scheme-scheme coordination [2]. For example, an infant may grasp an object and bring the object to the mouth to suck. Babies in this stage may be observed to habitually suck their fists or thumbs [1, 2, 4]. They also begin to anticipate events and vary their response based on environmental demands, such as crying due to hunger and quieting when his/her mother enters the room, knowing food was on the way [1, 2, 4].

The *secondary circular reactions* substage (4–8 months) is characterized by imitation [1, 2, 4]. As infants begin to reach for and manipulate objects in their physical environment, they attempt to repeat interesting events they have caused [1, 4]. For instance, an infant may continue to squeeze a toy that makes noise over and over again, and thus build a sensorimotor scheme of squeezing. From this stage forward, babies show an increasing interest in their actions on objects and events in the external environment, becoming an explorer of objects [2].

Infants 8–12 months of age begin to combine schemes into new, more complex action sequences in the *coordination of secondary circular reactions*. In this substage, they begin exhibiting intentional or goal-directed behavior, and they begin learning to solve simple problems [1, 2, 4]. Children at this substage begin to master object permanence, or the understanding that objects continue to exist when out of site (or covered by a cloth) [1, 2]. However, Piaget found that infants in this substage do not yet have a clear image of the object as persisting when out of view, as evidenced by the A-not-B error [1, 2]. Also in this substage, children become more able to anticipate events and imitate more complex behaviors. A child at this stage may cry in response to his/her mother walking towards the door, anticipating her leaving.

When an infant is between 12 and 18 months of age, Piaget considered he/she to be in the tertiary *circular reactions stage*. At this time children explore objects by acting on them in new ways, such as using a stick to get an object out of reach or pulling a small rug on which a toy rests. Children at this age also imitate unfamiliar behaviors, such as making funny faces or scribbling on paper. Piaget believed that children's capacity to use trial-and-error to experiment with toys and their physical environment leads to a more advanced understanding of object permanence and success on the A-not-B task [1, 2, 4].

The last substage of Piaget's sensorimotor period is called *mental representation*, and characterizes children ages 18–24 months. By the end of this substage, children have the ability to create mental representations, or

internal depictions of information that the mind can manipulate [1]. Piaget referred to this substage as "the invention of new means through mental combinations" [4]. Children begin finding solutions to problems suddenly rather than through trial-and-error experimentation. Eighteen to twenty-four month olds mentally represent their experiences and experiment with actions internally [1, 2, 4]. This enables them to solve advanced object permanence problems, which enable them to solve problems involving invisible displacement, or finding a toy moved while out of sight. Mental representations also enable them to remember and copy behaviors of models that are not present (deferred imitation) and engage in make-believe or symbolic play [1, 2, 4]. A symbolic system that can be shared with others facilitates communication and socialization, which is enhanced in later developmental stages [2].

Piaget's sensorimotor period is followed by the preoperational stage (2–7 years), concrete operational stage (7–11 years), and formal operational stage (11–15 years). According to his theory, children are able to transition to the next stage due to organization and adaptation processes of assimilation and accommodation. Children learn behavioral, symbolic, and operational schemata that are assimilated and accommodated into their repertoire, thus enabling them to successfully reach a state of cognitive equilibrium at one stage and move to the next cognitive stage [1–4].

Relevance to Childhood Development

Piaget's cognitive theory is one of many models of cognition in childhood. His sensorimotor stage of development describes the first 2 years of a child's life in terms of six substages through which every child progresses. In general, his writings describe development as a smooth progress between qualitatively different periods; however, recent work has demonstrated that development involves a gradual and inconsistent movement between cognitive processes [3]. For instance, individual and cultural differences may alter the path of cognitive development and lead to comparable cognitive outcomes [3]. While the validity of Piaget's stage theory of development has been disputed by recent theorists, his observations and ideas have considerably shaped the field of cognitive development and inspired more recent theorists.

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Piaget's Sensorimotor Stage

▶Piaget's Sensorimotor Period

Piaget's Theory of Moral Development

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Synonyms

Autonomous; Heteronomous; Imminent justice; Moral constraint; Moral realism

Definition

According to Piaget's theory, there are three broad stages of moral development. In the first, the child is still mastering motor and social skills and unconcerned with morality. In the second, the child exhibits unconditional respect for rules and submission to authority. In the last stage, the child recognizes that rules are arbitrary and can be changed with group consensus; the intentions of an actor (rather than just the consequences of the action) should be considered in judging the morality of an act.

Description

Overshadowed by both his own theory of cognitive development as well as the more elaborate moral development theory of Lawrence Kohlberg (1927–1987), Jean Piaget's theory of moral development has both inspired empirical research and attracted scholarly attention in its own right. While Piaget (1896–1980) spent much of his career refining his theory of cognitive development and did not revise

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This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

his theory of moral development beyond his initial book on the subject, *The Moral Judgment of the Child* (1932), his theory provided an important psychological framework for conceptualizing moral development for researchers. Although other psychologists researched and wrote about morality prior to Piaget's 1932 book (see [8, 12], for an overview of pre-Piagetian moral research), it is Piaget's theory that is remembered as the true beginning of the psychology of morality.

Piaget is sometimes erroneously portrayed as a "pure" cognitive psychologist, disinterested in both the social aspects of children's development as well as their behaviors outside the laboratory. The formulation of his theory of moral development contradicts this stereotype in many ways. In the first section of *Moral Judgment of the Child*, Piaget observed children playing marbles and researched the various rules related to the many different variations on marble games that children played, and Piaget stressed that older children's conceptualization of the fairness of rules is largely based on the consensus of the child's peer group in determining the structure and consequences of new rules. There is certainly a strong social aspect to this. Interestingly, Piaget's insinuation that moral judgment is a type of behavior partially anticipates the radical behaviorism of B. F. Skinner (1904–1990), in which private mental actions are assumed to be subject to the same laws as observable behaviors. Piaget spends the beginning of the second chapter of *The Moral Judgment of the Child* justifying his decision to concentrate on judgment; the stated morals of a child may reflect simply reflect the social desirability of the expressed sentiments, and the relationship between morals and moral behavior may be tenuous. But judgment is an action and, therefore, is a process that can be studied.

Stages of Moral Development

According to Piaget's theory, there are three broad stages of moral development. As with his theory of cognitive development, these stages are envisioned as occurring sequentially and in a linear fashion. Although movement from one stage to another takes may place on a continuum, Piaget envisions the stages as exclusively distinct from one another. Once a stage is attained, regression to a previous stage does not occur. It is not possible, according to Piaget, for a developing child to skip past stages, and although there is a correlation between biological age and attainment of a given stage the maturing morality cannot be reduced to a purely biological phenomenon. Rather, Piaget views the maturing morality as the result of cognitive development and interactions with the environment. It is important to note that Piaget does not make an explicit cross-mapping between his stages of moral development and his stages of cognitive development, nor are these stages widely known by unique names as are the stages in his theory of cognitive development. These stages are best understood in contrast with one another, just as in other stage theories.

Piaget's first stage of moral development encapsulates up to the child's fourth year or so. It could be considered "pre-moral" in a sense because the child does not truly interact socially with others. On one end of the spectrum, the child is still attempting to master basic motor skills necessary to play. On the other, the child is capable of imitation but plays alone in ritualistic fashion, either in solitude or in parallel with peers. Piaget does not focus on this stage as it has little to do with moral judgment, and occasionally subsequent researchers omit this period entirely, describing Piaget's theory as having only two stages [3, 6].

Piaget's second stage of moral development is characterized primarily by what he terms "moral realism." This refers to the young child's belief that rules are always externally given, cannot be altered, and must be literally obeyed. Submission to adult authority is made without question, and referred to as "moral constraint." Obedience, by definition, must be good. Children in this stage focus on the consequences of the actions rather than the intentions of the actor, and cannot conceptualize that sometimes well-intentioned actions sometimes have unintended and harmful consequences. There is the belief, known as "imminent justice," that all transgressions will ultimately be severely punished. In Piaget's research, children within this stage would follow the rules of a game of marbles that their older peers taught them, and fail to tolerate any deviation from those rules. They were also unable to take the intentions of a character in a fictional story into account when judging what Piaget called the "naughtiness" of the character, fixating on the undesirable outcomes of the story. Piaget often uses the word *heteronomous* in describing this stage, and it roughly spans from the child's seventh to eleventh year.

Piaget's third stage of moral development stressed reciprocal cooperation. Older children will follow the spirit of a rule, rather than the explicit letter of the rule, and recognize that since rules are arbitrary they may be changed with mutual agreed consent. Fairness is key; rules may be applied selectively and critically evaluated within context. The intent of an actor becomes more important than the consequences of his actions, and must be taken into account when judging his actions and determining his potential punishment. When punishment is to be given, it should be proportional to the violation or

transgression it is directed toward. These children tend to be older and more cognitively developed and therefore view adults more as equals than as authority figures to be unilaterally obeyed. Piaget describes this stage as *autonomous*, and found it primarily in children aged eleven and older.

Empirical Support

Empirical research for Piaget's theory of moral development is mixed. While Piaget used multiple methods to generate his theory (such as clinical interviews and observations), most subsequent research conducted by other psychologists exclusively utilize the presentation of his short moral dilemmas in story format. Virtually all research conducted in investigation of Piaget's theory only partially supports his framework, as with Harrower [5, 7], Sherwood [11], Cowan et al. [4], and Gabennesch [6]. As examples of research that entirely fails to support the theory, MacRae [9] and Bandura and McDonald [1] provide early examples. In general, subsequent research calls into question the universality of the ages at which children attain the different stages, specifically the roles culture and socio-economic status may play in moral development.

Relevance to Childhood Development

Unlike Kohlberg, whose theory of moral development presented a life-span approach stretching into adulthood, Piaget presented a theory that is explicitly limited to childhood. This may account for its continued presence in educational literature; for while Kohlberg's theory received a greater amount of critical and scientific attention within the larger field of psychology, Piaget's focuses exclusively on children and the types of activities they engage in, such as game-playing. This lends the theory an applicability and freshness to educators and child psychologists alike. While the theory displays similar drawbacks to those noted regarding Piaget's cognitive theory as a whole (e.g. a reliance on discrete stages, an overestimation of older children's abilities, an underestimation of younger children's abilities), its importance to the history of modern developmental psychology and its relevance to education must be acknowledged.

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Pimples

▶Acne

Placebo

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Synonyms

Placebo effect; Placebo response

Definition

A placebo can be described far easier than it can be defined or explained; some writers argue there is no one placebo effect but instead many such responses [4]. While the word placebo itself is Latin for "I shall please," the term first appeared in a medical lexicon in the 1800s, as Hooper [7] defined a placebo as a treatment administered more to please or placate than to benefit the patient. Another early attempt to define placebo was that of Wolf [18] who gave this definition: ". . .any effect attributable to a pill, potion, or procedure, but not to its pharmacodynamic or specific properties," (p. 100). Benedetti et al. [4] stated that the

placebo effect is a "psychobiological" effect that can be attributed to either expectations of improvement or ▶classical conditioning. In a similar light, Bausell [1] concluded that a placebo was a physiologically or pharmacologically inert substance that can have a physiological effect if delivered or administered to a patient who believes the substance will result in an effect. Stewart-Williams and Podd [14] drew this distinction: "A placebo is a substance or procedure that has no inherent power to produce an effect that is sought or expected. A placebo effect is a genuine psychological or physiological effect, in a human or another animal, which is attributable to receiving a substance or undergoing a procedure, but is not due to the inherent powers of that substance or procedure," (p. 326). A more precise definition of a placebo is not yet firmly agreed upon and an operational definition has been termed premature and problematic [12, 14, 15].

Description

Since first observed scientifically by Beecher [2], many of the properties of what will function as a placebo have been delineated, if not a complete explanation. A placebo is nonspecific in that they are not designed or focused to produce an effect on a specific disorder or condition and placebos work on a wide range of complaints and problems; typical medical treatments are precisely designed to address targeted conditions [1]. A placebo can be any intervention, encompassing words and gestures, pills and procedures, as well as devices and surgery [10]. An intervention that is presented to a patient in an authoritative or positive way and with apparent enthusiasm for the intervention, coupled with confidence, warmth and empathy will result in a greater placebo response [1, 15]. Beecher [3] argued there was significant evidence to conclude that placebos were more effective in the presence of increased stress. Colored pills are more efficacious as a placebo than a plain white pill; placebos given more frequently are more effective than infrequent placebos. An uncomfortable, invasive, active or sophisticated intervention is more effective as a placebo than the opposites [1, 6]. A more costly placebo is more effective than less expensive treatments [1, 15, 16]. A treatment that used to treat an unrelated condition but which will produce discernible but unrelated side effects such as elevated body temperature, known as an "active placebo" enhances a placebo's effects [14, 15]. The name given to a placebo has been shown to influence its effectiveness [10]. The likelihood of observing any placebo effect is lowest in a double-blind study, higher in a single-blind study and the highest in an uncontrolled study [15]. A placebo response is likely to be a greater effect for measures involving self-report and or psychological phenomena that for objective, quantifiable measures of symptoms [8, 10]. The types of conditions to which placebos have been tested range from blood sugar levels, cholesterol levels, weight loss, blood pressure, various pain syndromes, the healing of ulcers, nausea, inflammation and immune system response, depression, the ability of cardiac rehabilitation patients to tolerate exercise, depression, Parkinson's disease and Alzheimer's disease [1, 5, 8] although this list should not be considered exhaustive. A commonly reported patient's response rate for placebos has been given as being 30% [2] but published studies have found response rates ranging from 0 to 100% depending upon the condition [10].

As indicated by this quote, "the study of the placebo effect is the study of the psychosocial context around the patient" ([4], p. 10390), the psychology of the recipient is a variable in the placebo effect, albeit not completely understood. Some writers have argued that a placebo could be considered physically inactive but not psychologically inactive [14]. The proposed mechanisms behind any placebo response place the individual receiving the placebo at the center of the phenomenon. Although different writers lean in favor of one explanation over others, the number of purported explanations is small: classical conditioning, expectancies and anxiety reduction.

There are many similarities between classical conditioning outcomes and a placebo effect. In both cases, a variable that does not have any inherent active properties is observed to have active properties. In both instances, the inactive agent has a prior relationship with an active agent. Most any adult has had a pairing of clinical routines and events or even just a medical professional followed on numerous occasions by receiving oral pain relievers if not other medications; as a result, sorting out any conditioning effect from other aspects of a placebo is difficult [15].

A patient's expectations or expectancies would be beliefs or rules the patient has acquired or self-generated about a healing outcome [15]. As to how beliefs or rules as a description of event-response outcomes could result in a medical outcome, Kirsch [9] argued that classical conditioning is the means by words as symbols become active variables to affect physiology. Others have shown that instructions given to subjects in classical conditioning procedures can either facilitate or reverse the expected conditioning outcome [17]. Vallance [15] concluded that expectations/expectancies may at times rely on conditioning although there are other cases in which conditioning could operate independently and not be recognized in conscious, cognitive terms.

The anxiety-lysing effect of any therapy has been proposed as another mechanism underlying the placebo. Saline delivery has been found to reduce the emotional aspects of pain but not the noxious-sensory aspect of experimentally-produced pain [15]. Petrovic, Dietrich, Fransson, Andersson, Carlsson, and Ingvar [11] found that analgesia from placebo administration activated brain areas involved in emotional responses [15]. Anxiety itself can produce pain relief via stress-induced analgesia, which runs contrary to anxiety reduction as a placebo-analgesic mechanism [13].

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Placebo Effect

▶Placebo

Placebo Response

▶Placebo

Placenta

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Synonyms

Afterbirth

Definition

The placenta is a semi-permeable membrane that serves as a support organ for the fetus by facilitating the exchange of oxygen, nutrients, and waste products between the fetus and the mother.

Description

The placenta is a composed of a semi-permeable membrane that is dark reddish-blue or maroon in color. It averages nine inches (22 cm) in length and seven inches (18 cm) in diameter. The placenta typically weighs about one pound (500 g).

Relevance to Childhood Development

The placenta develops out of tissue from both the outer layer of the *blastocyst* (trophoblast) and the lining of the mother's *uterus*. It is connected to the fetus via the *umbilical* cord. The purpose of the placenta is twofold. First, as a semi-permeable membrane, the placenta serves as an exchange site between the *fetus* and the mother by permitting the passage of some materials between them. Oxygen and nutrients are transmitted from the mother to the fetus, while carbon dioxide and waste materials are transmitted from the fetus to the mother. Second, the placenta serves as a barrier of protection for the fetus by preventing the passage of certain materials through the mother's bloodstream. After delivery of the fetus, the placenta is expelled from the mother's body as a result of uterine contractions.

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Plantar Reflex (Non-Pathological)

►Babinski Reflex

Planum Temporal

►Wernicke's Area

Plasticity

►Protective Factors

Plasticity of the Brain

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Synonyms

Brain malleability; Capacity of the brain to change; Changes to the brain

Definition

Brain plasticity, from the Greek word *plaistikos* meaning to form, refers to the capacity the brain has to continuously change its structure and therefore function throughout a lifetime. Plasticity allows the brain to respond to external changes in the environment as well as internal changes in the organism. Brain plasticity reflects more than the maturation evident in human development. Plasticity also reflects the ability to change with experience. Experiences like learning new information and strategies mean that the brain has changed in form and function. The new behavior has changed the brain and the changes to the brain facilitate the new behavior [7]. In normal aging, neurons (brain cells) start to die from adolescence. This normal process rarely results in individuals experiencing significant declines in cognitive functions for several decades, if at all. This is because the brain engages in plasticity and the structure of the brain is changed to compensate for the slow neuronal loss [6]. Change also occurs as a result of injury (lesion). After an injury, the brain undergoes at least some re-organization to produce behaviors that have been lost. Complete restoration of function is not possible but brain plasticity can partially compensate for the damage.

Change in the synapse is the principle way in which the brain changes [6]. Synaptic change reflects alterations in axons, dendrites, the structure of existing synapses, and the number of synapses per neuron. For example, dendritic branches on some neurons are longer and more branched in the brains of older individuals. It should be noted that there are limits to the amount that the brain can change and research has not fully accounted for how such limits are manifest. It should also be noted that not all brain plasticity is functional. Dysfunction may be evidenced or implicated, for example, in the development of some degenerative diseases of aging, such as Alzheimer's disease.

Relevance to Childhood Development

Brain plasticity is most evident during early development and adolescence. Infants are regularly exposed to the objects, events, and people that shape their experience and therefore the changes to their brain. A child's early interactions directly influence the essential connections that occur in the brain. As a child acquires new knowledge and encounters new experiences, the elaborate cortical networks of the brain engage in modification and reorganization. Unused networks are pruned away during the early developmental years [4]. There are several stages of basic childhood brain plasticity. The first stage occurs prenatally when the brain is being "built." Disruptions, for example, due to alcohol [9] and poor nutrition [5] can result in brain impairment. During the first year of life, the postnatal brain engages systems or not depending on the exposure to adequate sensory input. More refinement takes place between 3–5 years of age, after which the brain has reached 90–95% of the average adult volume.

The skills for developing language and spatial abilities reach a peak from this age until puberty due to the large amount of activity in the parietal lobes that slows dramatically after puberty. Just before puberty, the frontal lobes are also the site of much activity and will again engage in plasticity in early adulthood. So many changes take place in the brain during the teenage years that most teenagers need to sleep much longer than they did previously, and they often have difficulty coping with early start times in the morning.

Brain injuries are unfortunately too common with children. Modes of injury include motor vehicle and bicycle accidents, falls, sporting injuries, and child abuse. It was once assumed that children were more resistant to brain injury than adults were because their brains were still developing and could demonstrate greater plasticity to compensate for certain trauma. That is, it was assumed the equivalent brain damage to a child and an adult would result in fewer problems for a child than an adult. This is known as the "Kennard Principle." However, there is now considerable evidence to the contrary, with many researchers suggesting that the outcome for children suffering brain injury is worse than the outcome for an equally injured adult [2, 3, 8]. Much of these studies also highlight that the difficulties faced by individuals who have experienced early brain trauma may not be evident until later in early adulthood when demands are placed upon vulnerable cortical networks. It is suggested, therefore, that adequate follow-up should be made right through to early adulthood. The brains of children are also vulnerable to psychological trauma as well as physical trauma. All experiences change the brain and, hence, child maltreatment, specifically resulting in a diagnosis of PTSD is associated with dramatic changes in the brain. For example, DeBellis et al. [1] found abused children with PTSD had less brain volume, larger lateral ventricles, and a smaller corpus callosum than did healthy control children.

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Play Assessment

▶Play-Based Assessment

Play Therapy

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Synonyms

Child-centered play therapy; Non-directive play therapy; Play-group therapy

Definition

Play therapy is a theoretical model which uses the therapeutic power of play to address various mental health issues.

Description

Play therapy is a theoretical model which provides an avenue for individuals to prevent or solve psychosocial problems as well as improve issues of self-acceptance and self-esteem. Although, play is a tool which can be used in therapy across all ages, play is used typically with children. In a traditional therapy model, the use of talk is the primary tool which is not always effective with young children because of the developmental limitations of their expressive language skills. However, children are able to understand more about their world than they are able to verbalize. Thus, through the use of play therapy children are provided a modality to express their thoughts

and feelings without using words. Essentially, play becomes a child's language of expression [7].

Play therapy has its early roots in psychoanalytic theory and is founded in the works of Sigmund Frued, Melanie Klein and Anna Freud. The first reference of the power of play in a therapeutic setting was documented by Sigmund Freud and his work with Little Hans [11]. Freud's work with Little Hans was expanded upon by the British psychoanalysts Melanie Klein and Anna Freud (daughter of Sigmund Freud). Melanie Klein [14] started to use play in order to analyze children under 6. She believed that play was essentially the same as free association used in adult psychoanalysis, while Anna Freud [10] utilized play as a means to facilitate positive attachment to the therapist and gain access to the child's inner life.

In [24], Carl Rogers, in response to the strict, prescriptive modalities of psychoanalysis and behaviorism, developed non-directive therapy, which came to be known as client-centered therapy. Emphasis was placed upon the relationship between the client and the therapist based upon genuineness, acceptance, and trust. Virginia Axline [3], who was mentored by Rogers, developed a new therapeutic approach for working with children based upon Rogers' person-centered theory called non-directive play therapy. Axline's account of working with a young boy, Dibs [2], is well known and is one of the key references in regard to non-directive play therapy. Play Therapists such as Moustakas [18] and Schaefer [25] have expanded upon Axline's ideas and introduced different models integrating family therapy, narrative therapy, and cognitive behavior therapy along with play therapy techniques. More recently, British drama therapists Sue Jennings [12] and Ann Cattanach [8] have introduced play therapy methods which integrate drama therapy work with children.

Today, psychoanalytic play therapy continues to be widely practiced around the world and focuses primarily on object relations and attachment theory. The play therapy model involves establishing a warm relationship with the child, accepting the child and his or her feelings as they are, reflecting the child's feelings in a way that allows the child to gain insight, and allowing the child to take the lead in therapy. A core belief for child-centered therapists is that children are capable of directing their own growth when provided empathy, warmth, unconditional positive regard, genuineness, and a safe place [7]. Many play therapists include art, drama, music, dance, and sand trays in their therapy. Overall, play therapists approach play therapy from a wide range of theoretical perspectives. Among the many types of play therapy being practiced today are Adlerian [7], cognitive-behavioral [15], existential or relationship [19], Gestalt [20], and Jungian analytical play therapy [1].

Techniques of play therapy tend to take the form of non-directive (as per Axline) or directive. In directive play therapy, the play therapist is actively involved in and takes charge in the play interactions with the child. In non-directive play therapy, the child takes charge of the play and makes his or her own rules, with the caveat that no one gets hurt. In both modes, the child is assured that what is said and done in the office remains private unless they are in danger of harming themselves.

Many play therapists will meet with the parent(s) prior to beginning formal play therapy with the child in order to get a proper social and developmental history, and will meet with the parent(s) every so often in order to provide information about child development, suggestions for parenting, and alternative ways to communicate with their child. It is important that details of the session with the child not be transmitted to the parents in order to maintain privacy, promote the child's free expression in their play, and establish trust of the therapist. The therapist will communicate to the child's parents their understanding of the child's needs or conflicts without divulging details of the therapy.

Once formal play therapy begins, the therapist observes and/or directly participates in the child's play and begins to recognize themes and patterns or ways of using the materials that are important to the child. Over time, the therapist helps the child begin to make meaning out of the play. This is important because the play reflects issues important to the child and typically relevant to their difficulties. Pledge [21] notes that, as with any projective technique, caution needs to be taken in interpreting the themes of a child's play, as acts that seem violent and/or destructive may just be activity or testing the limits of a new situation. She also notes that for children of a young age, it is the process of play therapy, not the production of insight that provides relief and healing for them.

Play therapy has been shown to be effectively practiced across a number of settings, including schools, hospitals, residential treatment, community clinics, and private practices as well as been shown to be effective in addressing various mental health concerns [5]. Research documents play therapy as a valid technique in the treatment of conduct disorder and aggression [9], behavioral disturbances [26], separation issues surrounding parental divorce [6], sexual abuse [23], and Attention-Deficit Hyperactivity Disorder [13]. In 2001, Ray et al. [22] completed a meta-analysis of 94 research studies investigating the clinic effectiveness of play therapy. The 94 studies measured the effects of play therapy conducted by American play therapists and contained over three

thousand subjects, with a mean age of 7.1 years. The 94 studies included 20 different client groups with difficulties such as Conduct Disorder, Anxiety/Fear, Speech and Language Difficulties, Depression, Sexual Abuse, and Post-Traumatic Stress Disorder. Results of the meta analysis revealed a large effect size ($d = 0.80$), showing that play therapy is a highly effective intervention technique for a variety of childhood difficulties.

In 1982, the Association for Play Therapy (APT) was developed. The Association for Play Therapy [4] reports that play therapy "helps children become more responsible for behaviors and develop more successful strategies, develop new and creative solutions to problems; develop respect and acceptance of self and others, learn to experience and express emotion, cultivate empathy and respect for thoughts and feelings of others, learn new social skills and relational skills with family, [and] develop self-efficacy and thus a better assuredness about their abilities."

Although play therapy may seem simple to the untrained eye, it is a challenging therapeutic endeavor requiring training and skill. The practice of play therapy requires extensive specialized education, training, and experience. Play therapists have earned an advanced degree (Master's or Doctorate) in a mental health field such as counseling, social work, or psychology.

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Play Therapy Group

►Play-Group Therapy

Play-Based Assessment

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Synonyms

Alternative assessment; Child-center assessment; Early-childhood evaluation; Play assessment

Definition

A type of clinical evaluation technique used to assess the functioning of children in the area of emotional and behavioral domain, developmental qualities, using both qualitative and quantitative methodology.

Description

The importance of early intervention and prevention has garnered international recognition and support [2]. In that regard, early intervention is aimed to provide services to individuals who need services before these issues escalate into severe problems. Critical to this process is an appropriate and efficient assessment approach. In the past, practitioners have found it difficult to obtain ecological valid and reliable data when using traditional assessment tools. To address these concerns, play-based assessment has gained popularity due to its sound theories and age-appropriate methodology [1].

For adult psychological evaluation, verbal communication is the primary method of gathering data; however, assessment with young children requirement a different approach. It has been long recognized that children learn and express themselves through play; it is through play that they explore the world and develop cognitive capacity and problem-solving skills [7]. It is through the quality and quantity of play that a clinician is able to determine and evaluate a child's development and functioning through a variety of objective and subjective instruments.

Studies have shown that children with social delays engage in simple play and are less likely to spend time in group play [3]. Johnson and Ershler [4] further indicated that developmentally delayed children engage in less sophisticated play than their typical peers. In general, children with developmental delays played with toys in a restricted manner and were not able to engage in constructive and dramatic plays. Studies have suggested that both qualitative and quantitative nature of play were indicative of children's cognitive, academic, and social development [5].

Given the utilities of play-based assessment, here are a few guidelines for practitioners. First, in order to meet the needs of both assessor and child, the assessment procedure should be pleasurable, flexible, and positive for the child. Secondly, assessment should take place in the child's nature environment, so he or she can play at ease and the appropriate level. Thirdly, it is important to offer choices in play for the children, allowing them to direct their own play. If a child is disabled, then the evaluator needs to consider the barriers to the play. For example, if the child has communication difficulties, other modes should be offered such as symbols, drawing, painting, pictures, and other objects of references, along with additional nonverbal gestures [6].

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Play-Group Therapy

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Synonyms

Adlerian play therapy; Adolescent and child behavior therapy; Age-related play therapy; Art therapy; Child-centered therapy; Child psychotherapy; Child therapy; Cognitive-behavioral play therapy (CBPT); Counseling; Directive play therapy; Expressive group therapy; Gestalt play therapy; Group activity therapy; Group play therapy; Group psychotherapy; Music therapy; Nondirective play therapy; Play therapy; Play therapy group; Sand tray therapy

Definition

A relationship built between peer groups of children or adolescents with a therapist specializing in play therapy, using group therapy techniques in a playroom setting as a means for youth to explore themselves and others (e.g., how one acts, thinks, and feels) through play.

Description

Play is the universal language used by children to communicate their understanding of the world around them where the toys depict the words of the child. Play therapy is to children as talk therapy also known as narrative therapy is to adults. Typically, play-group therapy,

commonly known as group play therapy is when a minimum of two or a preferred maximum of four children or adolescents currently functioning at similar developmental stages interact with each other and the therapist in a therapeutic playroom setting. However, the number of group participants should be evaluated on a case-by-case basis. Schaefer [3] recommended that the length of the group session should also be considered on a case-by-case basis with a group of preschool to elementary-aged children should range between 20 and 40 min, while children in middle or high school may attend the group for 1 h.

Landreth [2] described group play therapy as differing from the concept of group counseling due to the fact that it is not necessary to have group rules as well as group cohesion among members to promote growth; this is simply done by observing other children which ultimately empowers a child to attempt new things. It has been suggested that the use of play-group therapy may be more beneficial and expedite the therapeutic process with youth. Berg et al. [1] described group play therapy as a way to provide a sense of universality among the group members fostering a realization that other children experience problems too and they are not alone in dealing with real-life situations allowing children to increase their self-concept.

As with a group counseling session, the first step in play-group therapy is to create a safe and nurturing environment. Once this environment is established, the group process seeks to promote the expression of emotions while at the same time establishes the chance for children to offer empathy to other children in the group setting. When a child discovers that they can also be helpful to someone else in the group the comradery built among members increases one's self-esteem and self-concept. The primary goal of play-group therapy is to foster social interaction skills and develop emotional coping skills. This typically utilizes a series of different modalities of play such as: art, music, board games, games, sand tray therapy, and other directive and nondirective forms of general play.

The primary role of the group play therapist is to facilitate an environment for growth, personal sharing of one's story, a sense of universality, acceptance, and the development of social and coping skills. It is important for the group play therapist to verbally track the behavior and name the emotions expressed during the session by each group member. This is done by also including the child's name for example, the therapist would state, "Gavin, you're playing with the puppets" or "Samantha, you seem to really enjoy playing in the sand." There are many theoretical foundations and therapeutic modalities that are used in play-group therapy just like those that are used in individual play therapy and other types of therapies. The group facilitator decides which approach to utilize in the group setting based on their particular specialty area and the population of children being treated. Some types or styles of play-group therapy that are frequently used by clinicians consist of: sand tray therapy groups, art therapy groups, child-centered group play therapy, adlerian group play therapy, jungian play-group therapy, cognitive-behavioral group play therapy, and gestalt play-group therapy.

Additionally, another key aspect of the play-group process is for the play therapist and the group members to set limits to ensure safety and enhance the child's ability to express negative feelings while maintaining self control. The limit-setting serves to protect the play therapy room as well as uphold the legal and ethical standards of the profession. When working with children it is important to note as Schaefer [3] mentioned that although the child is the foci of treatment it is important to include the parents or guardians as the client(s) due to legal and ethical considerations. In essence, play-group therapy serves to provide a medium of treatment where children can learn from other children's experiences while expressing their own emotions though the use of play.

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Playmates

►Friendship

Pleasure Principle

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Synonyms

Lustprinzip (German); Pleasure-pain principle; Pleasure-unpleasure principle; Unpleasure principle

Definition

The pleasure principle, originally developed by German philosopher Gustav Fechner, and borrowed by Sigmund Freud [2–5], is a psychoanalytic concept according to which psychological processes and actions are governed by the immediate gratification of needs and the avoidance or release of unpleasurable tension.

Description

Freud's approached the study of the mind from a biological perspective, both due to his medical training and of prevailing notions of the nineteenth century, when he started his practice of medicine. He conceived of the individual as a store of dynamic energy that both needed to be continuously discharged and then continuously replenished. Freud conceived of two different types of energy, Eros (life instinct) and Thanatos (death instinct, aggression). The energy behind the life instinct was called the libido, which managed the instinctual drive towards survival and replacement of energy through conversion into more specific human needs (sex, food, safety).

Instincts drive and direct behavior, the end result of which is the satisfaction of needs derived from the instincts. Needs lead to tension, and behavior is directed towards tension reduction. At first, Freud called this concept the unpleasure principle [2], but later changed it to the more common usage, the pleasure principle, which is a direct translation of Fechner's "lustprinzip". The pleasure principle aims to keep excitation or tension as low as possible by aiming toward the immediate gratification of instinctual needs, most of which, in Freud's original conception, were sexual in nature. Freud [5] ascribed this aim to what he called the id, which includes other biologically determined drives, such as the impulse to love and to seek gratification. The id's function is to bring about the satisfaction of instinctual needs on the basis of the pleasure principle. The energy of the id is invested in either in action on an object that would satisfy an instinct or in images of an object that would give partial satisfaction. This hallucinatory wish fulfillment is called primary process thinking. The id's energy is so mobile that it is easily discharged or transferred from object to object or image to image [6]. Eventually; however, the ►reality principle interecedes, driven by ego, and the mind learns to delay and/or avoid gratification of needs based on the real-world consequences of immediate and actual gratification.

Relevance to Childhood Development

According to Freud, the pleasure principle plays a key role in the developing child's life. He believed that an infant's life is mostly governed by the pleasure principle, and theorized that there were "pleasure zones" in the body that changed as the infant developed into a child. This formed the basis of Freud's theory of child development, based on psychosexual stages, and his theory of psychopathology, which occurred due to "fixation" at one of the stages due to an inability to satisfy the need/needs relevant to that particular stage.

Freud's psychosexual theory of child development was based on the pleasure that could be derived from each of the body's erogenous zones, which his stages were organized around. This notion of infant and child sexuality was quite controversial at the time, and remains so today, and in fact, this notion was one important factor in the schism between Freud and some of the other important psychoanalysts at the time (Jung, Adler, etc.).

The first erogenous zone, or zone of pleasure for a developing infant is the mouth, and thus infancy (birth to age 1) is called the oral stage of development. In this stage, the child desires oral gratification, and sought it out via sucking on the mother's breast for nurturance and, later on, by ingesting food through the mouth. At this stage, and other stages, the life instinct (Eros) compels the infant to do what it has to do to survive. Once this is mastered, the zone of pleasure moves to the anal area, leading to the anal stage of development (typically age 1–3), where elimination becomes the focus, as survival (mostly ingestion of food) would be impossible without elimination. Again, instinct drives the behavior, and provides pleasure when it is done. Next, the erogenous zone shifts to the phallic area, and the phallic stage of development (age 3–5), where pleasure is experienced through the penis/vagina. In healthy development, according to Freud, the end of this stage brings resolution to the Oedipal complex and ►identification with the same-sex parent, as well as the introduction of the superego.

The next stage is characterized by latency (age 5 to onset of puberty), where Freud felt sexual drive were repressed and no new area of bodily excitement emerges, and finally the genital stage (adolescence), where the sexual urges recur but are now directed toward a peer of the opposite sex. Bronski [1], among others, has taken issue with the idea that the end result of healthy development is the enactment of sexual urges in relation to a peer of the opposite sex. He advocates for the inclusion of sexual urges directed toward a peer of the same sex in the conversation about healthy sexuality and healthy development.

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Pleasure-Pain Principle

►Pleasure Principle

Pleasure-Unpleasure Principle

►Pleasure Principle

Pleasuring Oneself

►Masturbation

Plumbism

►Lead Poisoning

Plumpness

►Obesity

PNS

►Peripheral Nervous System

Polysomy Y

►XYY Syndrome

Poppers

►Inhalants

Positive Affect

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Synonyms

Positive affectivity; Positive emotions

Definition

Positive affect refers to the extent to which an individual subjectively experiences positive moods such as joy, interest, and alertness.

Description

Positive affect is one aspect of pleasurable and positive experience. Although positive affect overlaps to a significant degree with the concept of positive emotions, they are not identical. Positive affect is more closely related to mood states whereas positive emotions involve positive feelings as well as characteristic patterns of physiological arousal, thoughts, and behaviors [1]. Positive affect is usually measured through the use of self-report scales, such as the Positive and Negative Affect Schedule [2], in which respondents are presented with words describing both positive and negative moods and asked to rate each according to the extent that it describes them. Although these scales were originally designed for adults, more recently they have been adapted for use with children and adolescents.

Research suggests that individuals who have high degrees of positive affect are generally more extraverted than people with negative affect, and that they also experience a greater variety of mental and physical health benefits. Moreover, although positive affect is often contrasted to negative affect, these constructs can be independent of each other. Specifically, individuals can be high or low on one dimension whether they are high or low on the other [1]. For example, in determining whether a child or adolescent is experiencing depression or anxiety, assessing the degree of positive affectivity may be useful. Research suggests that youth with depression experience substantial levels of negative affect but not positive affect, whereas youth with anxiety disorders often experience both negative and positive affect. Although positive affect appears to a large extent to be genetically determined, it is not exclusively so, and can be enhanced through both cognitive and behavioral modification [1].

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Positive Affectivity

►Positive Affect

Positive Emotions

►Positive Affect

Positive Practice

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Synonyms

Overcorrection; Positive punishment; Restitution

Definition

A type of overcorrection procedure, in which, contingent on the problem behavior, the student is required to engage in correct forms of relevant behavior until the behavior has been a repeated a number of times [2].

Description

This process ensures the individual practices the correct response according to a predetermined number of repetitions or duration, contingent upon problem behavior or incorrect responding. The behavior emitted during the repetition interval is related to the inappropriate response and is designed to ensure the individual learns the correct response to emit in the future [1]. An example of this procedure includes having the learner appropriately dispose of ten pieces of paper contingent upon throwing trash on the ground. The effort required to emit the appropriate behavior is designed to teach the learner the appropriate response (e.g., throwing trash into the garbage can) and to reduce the future frequency of the inappropriate behavior of concern (e.g., disposing of garbage on the ground/floor).

Relevance to Childhood Development

Positive practice has been implemented in multiple learning contexts for children with developmental disabilities. Not only has it been utilized within clinical settings, such as those mentioned, above, but the procedure has been implemented within the context of skill acquisition during the completion of education tasks [3]. The procedure provides the learner with the opportunity to emit the correct response, thus exposing the learner to multiple trials of the correct response.

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Positive Punishment

►Overcorrection
►Positive Practice

Positive Reinforcement

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Definition

Positive reinforcement involves the increase in the frequency of a behavior as a result of the presentation of a stimulus.

Description

There are many theories founded by psychologists and educators that attempt to explain how people learn. A prevalent theory that has been utilized and researched for over 80 years is operant conditioning. Originated by B. F. Skinner in the 1930s, operant conditioning attempts to define how different types of reinforcers and punishments can strengthen and weaken behaviors.

There are two types of reinforcers that strengthen behavior: positive and negative. Positive reinforcement is a way to encourage a good behavior by providing a constructive reinforcer to the person. These reinforcers increase the odds that the positive behavior will occur again in a similar situation. When using positive reinforcement, it is important for the reinforcer to be preferred or wanted by the person. If not, the person's behavior is unlikely to change and the behavior is unlikely to occur again. Negative reinforcer encourages a behavior by removing an unpleasant stimuli.

Relevance to Childhood Development

For school children, many types of positive reinforcers have been developed to persuade children to behave in class. The most basic of these is smiley face stickers. Other examples include extra recess time, free homework passes, and toys from a treasure box.

For adults, positive reinforcers are more complex. Personal success is often a reinforcer that adults find rewarding. Other positive reinforcers for adults include pay-checks, raises, and praise.

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Positron Emission Tomography

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Synonyms

Functional imaging; PET

Definition

Positron Emission Tomography (PET) is an imaging technique that produces a high resolution spatial three-dimensional image. PET is used both for clinical and research purposes, in order to identify areas of the brain associated with various psychological tasks and to assess cortical areas associated with various psychological and neurological disorders.

Description

Positron Emission Tomography (PET) produces high quality images that are hemodynamic, chemical, functional, or metabolic from which conclusions of physiological variables can be determined. Before scanning takes place the individual is injected with glucose or another chemical that contains radioactive atoms [1]. During scanning, when the glucose or other radioactive material begins to decay a positron is released and collides with an electron that emits two gamma rays going in exact opposite directions [2]. The detectors record the arrival of rays along the outside area and quantify the difference in arrival time to figure exactly where they were produced [1]. The computer determines how many rays are coming from specific areas and how much of the chemical is located in that area. A three-dimensional image of the studied organ is formed. The areas with the most radioactivity, hence the most bloodflow, are shown as the areas with the most activity [3]. PET images are usually coupled with Computerized Tomography scans which give two sets of data, anatomy and metabolism, that can be merged into a unique image to form the final result [4].

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Postcentral Gyrus

►Somatic Sensory Cortex

Postconventional Moral Reasoning

►Postconventional Morality

Postconventional Morality

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Synonyms

Kohlberg's third level; Postconventional moral reasoning; Principled moral reasoning; Stages 5 and 6 of moral judgment development

Definition

Postconventional morality, a concept developed largely by psychologist Lawrence Kohlberg, identifies the ethical reasoning of moral actors who make decisions based on rights, values, duties, or principles that are (or could be) universalizable. This means that the principles are separable from the authorities or persons who hold them, they are open for debate and generally agreeable to individuals who seek to live in a fair and just society, and they withstand tests of logical comprehensiveness. Postconventional morality, as distinguished from postconventional moral reasoning alone, also includes principled moral behavior, or moral action.

Description

Lawrence Kohlberg's (1927–1987) stage theory of moral reasoning includes three levels of development — preconventional (Stages 1 and 2), conventional (Stages 3 and 4), and postconventional (Stages 5, 6, and a metaphorical Stage 7). The postconventional level reflects a moral philosophy that is principled, structural in form, and independent of the specific content of a given moral dilemma. Kohlberg's stage model began with the great philosophical questions: "What is virtue?" and "What is the good?" Kohlberg, following the views of philosophers Plato, Immanuel Kant, and John Rawls, answered that the first virtue is *justice*, defined as equity or equal respect for all people. Regarding justice reasoning, Kohlberg also followed Jean Piaget [3, 4] and applied a systematic stage framework called structuralism, the analysis of invariant, paradigmatic relationships between ideas, to moral reasoning. Thus, Kohlberg's three moral levels are each a systematic framework for describing the worldview that the individual constructs in his or her moral imagination in order to enact equity and fairness for all people. Each stage constitutes a separate moral philosophy, a unique construction of the sociomoral world.

The three levels are developmentally ordered. That is, they outline a course of moral judgment, stimulated by environmental sociomoral issues, that progresses from simple to more complex modes. Development is the qualitative reorganization of meaning, and this restructuring of experience informs the notion of cognitive stages. Kohlberg used the word "stage" to suggest qualitative differences in the individual's modes of thinking about or solving the same problem at different ages of the lifespan. Development, then, is movement toward greater ease in adaptation, differentiation, and integration of distinct modes of thought in an invariant and hierarchical developmental sequence. Individual moral actors always prefer solutions to problems at the highest levels available to them. This is the foundational and driving force underlying movement from one stage to another, more adequate, stage [1, 2].

Postconventional Morality as the Telos of Moral Judgment Development

Kohlberg named the three developmental levels preconventional, conventional, and postconventional, relative to the orientation of the moral actor toward the agreed-upon societal arrangements and norms called conventions. Preconventional moral thinkers, typical of children ages 4 through 10 years, are aware of social conventions, but only as the arbiter of rules and standards with the capacity to exact consequences for breaches in conduct. Conventional moral reasoning, typical of most adults, is concerned with maintaining familial expectations as well as maintaining, supporting, and justifying

the social order. Conventional morality might also be called conforming morality; maintaining the social order is considered valid in its own right. Kohlberg's postconventional morality, the rarely observed third level, is also known as the principled level, because here, the moral agent defines moral values and principles as completely separate from the social conventions maintained by societies and institutions. Separating moral principles from the institutions and persons who claim them allows the moral agent to use those principles to interrogate socially agreed-upon standards and arrangements in relation to individual rights and duties to all members of the society. Postconventional morality, then, recognizes that society itself is a system of arrangements and represents the impartial application of generalizable and logically consistent norms and egalitarian practices to all members of society.

Kohlberg demonstrated that an individual making a transition from conventional to postconventional morality is often characterized by the belief that moral choices are personal and subjective. The transitioning moral actor views conscience as arbitrary and relative, along with the ideas of "duty" and "morally right." This moral actor embraces a worldview that places him or her outside of the norms of society, making decisions without the strong commitments to the social order that are evinced in conventional thinking. While recognizing that normative rules are defined by particular societies, such persons ground moral choices in universal principles that transcend the norms of society.

Within each of Kohlberg's three levels of moral reasoning are two related but distinct stages, which are integrated and structured as separate but complete systems of philosophical and cognitive orientation. (See entry, *Kohlberg's Theory of Moral Development,* for more information.) As the most complex patterns of sociomoral reasoning in Kohlberg's moral judgment development model, Stages 5 and 6 reflect autonomous morality based on mutual respect, reciprocity, and equality. Fairness, at the autonomous level, involves cooperation and reciprocal exchange. This moral orientation is "society-creating" rather than "society-maintaining."

Stage 5 thinkers view "the right" as upholding the basic rights, values, or principles of a society, even if those rights conflict with the existing laws and concrete rules of the social group. This person is aware of the rights and values that would be granted to anyone who lived in a moral society; the validity of group laws are tested for consistency with those fundamental rights and values. The Stage 5 individual recognizes human values and basic rights that exist prior to social arrangements, rules, and laws. This prior-to-society perspective yields a worldview in which the moral point of view and the societal point of view may be juxtaposed and differentiated. The social group is seen ideally as a social contract between the collective and the individual, with the individual capable of opting in, or out, of this arrangement. Kohlberg used the example of Sir Thomas More to illustrate a postconventional moral conscience at Stage 5 [1, p. 382].

Stage 6 thinkers construct a moral worldview by imaginatively taking the roles of all participants in a given situation while also considering all of the contextual issues of each individual. The person chooses right action as a matter of conscience, in accordance with self-chosen ethical principles that appeal to logical comprehensiveness, universality, and consistency. Principles are abstract and ethical; they encapsulate reciprocity for the equality of all human rights and respect for the dignity of all human beings. They are not opinions or values but guiding standards for moral decisions and action. This individual recognizes and lives out the basic moral principle of respect for all human beings, affirming in thought and action that each human life is valuable and has the right to be treated with dignity and fairness. This human rights orientation is the principle of justice, and in Stage 6 the moral agent inhabits a worldview in which all moral decisions are transacted from this universal principle. Kohlberg considered that Martin Luther King, Jr., particularly as he expressed himself in his "Letter from a Birmingham Jail," illustrated the use of postconventional justice reasoning at Stage 6 [1, pp. 382–383].

Exemplars of Postconventional Morality

Kohlberg identified at least a dozen historical figures whom he regarded as exemplars of postconventional morality. His moral exemplars included Marcus Aurelius, William Brennan, Archibald Cox, Martin Luther King, Jr., Janusz Korczak, Abraham Lincoln, Sir Thomas More, Andrea Simpson, Socrates, Baruch Spinoza, and Henry David Thoreau [7]. What made these people worthy of such designation, for Kohlberg, was that, beyond their principled moral reasoning, they all had taken tangible moral action, such as the use of nonviolent public dissent, critical speeches, and protest marches. Consequently, most faced penalties, and almost half of them died for their moral stance.

Nevertheless, Kohlberg found so few contemporary adults who transacted moral decisions at Stage 6 that it was difficult for him to study this stage empirically. This presented a problem in the continued evolution of Kohlberg's theory, because the model itself was derived

from, and built upon, the assumption that universal, principled justice reasoning, the hallmark of Stage 6, was the ideal endpoint of moral development. Kohlberg omitted Stage 6 from the standardized edition of his scoring manual, citing its empirical rarity. Additionally, cross-cultural studies conducted around the world documented only limited evidence of Stage 5 thinking [6], causing some critics to doubt the universality of postconventional moral reasoning as defined by Kohlberg's stage model.

James Rest and Postconventional Morality

James Rest (1941–1999), a neo-Kohlbergian developmental psychologist, built on Kohlberg's work by studying the hierarchical nature of the moral development stage model. Rest's research led to the development in the early 1970s of the defining issues test (DIT), a moral judgment test that shortened the time-consuming task of measuring moral reasoning with Kohlberg's moral judgment interview (MJI) and its complex scoring manual. The DIT2, a revised version that has been in use for over 10 years, shortened the number of test dilemmas, updated the 1974 language of the DIT, and included new test problems [8]. Both the older and the updated measure have yielded results that support a significantly different definition of postconventional morality from that of Kohlberg.

Kohlberg's structural-developmental stage model defined moral judgment in terms of justice, an understanding of morality defined by John Rawls as the way in which major social institutions distribute fundamental rights and duties and apportion social advantages so that one group is not favored over another. Instead of stages with distinct justice operations, DIT research favors the notion of schemas as the formative cognitive structures, constructed by the individual in relation to environmental interaction, that follow a developmental sequence. The term "schema" marks a departure from Kohlbergian stage theory in that DIT evidence does not support the strict, stair-stepping sequence of levels of moral judgment or the assumption that individuals occupy only one level at a time. Remaining in the definition of "moral schemas" are Kohlberg's core ideas of emphasizing cognition, the construction of patterns of thinking from sociomoral experience, and moral judgment moving from simpler to more complex modes. Accordingly, DIT research suggests three schemas, the Personal Interest schema, roughly associated with Kohlberg's preconventional level, the Maintaining-Norms schema, associated with the conventional level, and the Postconventional schema, which reflects the core ideas of Kohlberg's postconventional level.

Postconventional schemas capture the moral actor's shift from conventional to postconventional thought that is the hallmark of moral development. The defining characteristic of the Postconventional moral schema is "that rights and duties are based on sharable ideals for organizing cooperation in a society, are open for debate and tests of logical consistency, experience of the community, and coherence with accepted practice" [5, p. 41]. Both of Kohlberg's postconventional stages characterize this schema, although the schema here is more broadly defined than Kohlberg's stages and does not attempt to describe universal ideals. Postconventional thought as suggested by this understanding is ideal based, nondogmatic, and subjective; it is open to experience but must withstand tests of logical coherence. Ideals are open to debate, interpretation, and practice. Social norms are viewed as alterable, and the postconventional thinker literally separates them from the moral sphere. Deviation from social norms has the potential for good when laws are unjust or biased in favor of one group or people or particular institution. The positive, constructive features of postconventional thinking include the ability to envision creative and shared idealized avenues where humans can interrelate. The criteria for the postconventional schema are rational and psychological; the criteria for postconventional stages were philosophical and justice oriented.

Rest and his colleagues propose four rational criteria essential for definition as postconventional schema. The first is understanding the moral purpose behind societal norms and codes. The postconventional thinker considers norms and obligations as social arrangements that can be renegotiated and re-verified, given new circumstances and social arrangements, in contrast to the Maintaining Norms (conventional) thinker, who looks to the norms and obligations themselves as a source of authority. The second characteristic of the postconventional thinker is an appeal to an ideal. Such ideals may include those of guaranteeing basic human rights, engendering caring relationships among all people, or ensuring a living wage for all workers. In addition, to be postconventional, these ideals must be sharable, the third criterion for this schema. Sharability means it is not ethnocentric. It should serve group goals, enhance and facilitate cooperation from others, and be consistent with the common good. Sharability remains open to rational critique and is subject to modification with additional experience and new evidence. Finally, postconventional thinking must embrace full reciprocity. Full reciprocity entails not only uniform application of social norms, but also demands that the social norms themselves do not favor some members of a society at the expense of other members of the society.

From results of DIT research, Rest and colleagues operationalized a broader definition of postconventional morality, thus suggesting a developmental typology in empirical and psychological terms that avoids the philosophical criticisms of the stage theory as postulated by Kohlberg. The DIT-informed definition of postconventional moral reasoning does not propose a normative philosophical theory.

Relevance to Childhood Development

Children do not exhibit postconventional morality. Understanding the nature of postconventional morality, however, can provide direction for moral education efforts with children. Education aimed toward creating postconventional thinkers highlights the need for "just learning environments" and leads to improved pedagogies for justice reasoning. That will, in turn, promote the development of morally mature persons able to serve as teacher-citizens of community schools and as public citizens of a democratic society evolving toward the realization of justice and equality for all.

Kohlberg developed methods of moral education that promoted moral development and mature character, including exposure to moral exemplars, classroom moral dilemma discussion, and Just Community programs in which democratic education was a normative feature. His approach to moral education taught that attention should be given both to promoting the role taking and moral judgment development of individual students and to enhancing the moral cultural environment of classrooms and schools.

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Post-Infancy

►Childhood

Postmodernism

►Constructivist Psychotherapy

Post-Natal Depression

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Synonyms

Postpartum depression (PPD)

Definition

According to the American Psychiatric Association's *Diagnostic and Statistical Manual, fourth edition, text revised* (DSM-IV-TR) [2] post-natal depression (PND) is recorded as a specifier of a major depressive episode which has its onset postpartum. PDN is usually diagnosed between the sixth and twelfth week after childbirth and shares the characteristics of a major depressive episode.

Description

More specifically, PND is classified as Major Depressive Episode with Postpartum Onset and is characterized by depressed mood most of the day, nearly every day, or loss of interest or pleasure in all or almost all activities most of the day, nearly every day, accompanied by at least five of the following features: weight changes, sleeping problems, psychomotor agitation or retardation, fatigue or loss of energy, feeling of worthlessness or excessive inappropriate guilt, diminished ability to think or concentrate, and recurrent thoughts of death or suicidal ideation and the episode must have its onset within 4 weeks after childbirth [2]; even though it is most commonly diagnosed between 6 and 12 weeks after childbirth [20]. PND is also commonly associated with mood fluctuations, mood lability, and preoccupation with the child's well-being [2], while more recurrent thoughts of death or suicidal ideation, or recurrent thoughts of harming the baby may be present in women with PND [20].

Post-natal depression (PND) affects women in various socio-cultural environments around the world during a sensitive period of their lives. Prospective studies have demonstrated that PND affects approximately 10–15% [10, 12] or 20% [24] of women after delivery in western countries, while 1 in 1,000 women may experience psychotic episodes [24]. On the other hand, some have reported prevalence estimates for PND between 6.5 and 12.9% [20], while others have reported slightly different prevalence estimates according to geographical location and population; for example Gonidakis and colleagues [10] reported a prevalence of 19.8% in Greece, Rahman and Creed [21] reported prevalence estimates of 56% in Pakistan, Chaaya and colleagues [6] reported prevalence rates of 21% in Lebanon, and Cox and colleagues [9] reported a prevalence of 53.6% among adolescents.

Moreover, PND is thought to be unique compared to the other mood disorders in that PND is highly related to several neuroendocrine alterations. PND differs also in that it has implications for the psychosocial adjustments that have to be made in everyday functioning and on future family planning decisions, while breast-feeding has implications on treatment decisions [2]. Additionally, Bernstein and colleagues [5] report that even though non-postpartum and postpartum depression (PPD) are both characterized by low energy level and restlessness/agitation, non-PPD is more closely associated with more sad mood, more suicidal ideation, and more reduced interest, whereas in PPD sad mood is less prominent but psychomotor symptoms (restlessness/agitation) and impaired concentration/decision-making are more dominant.

Within this context, it is essential also to distinguish PND from the "baby blues" [2] or the "maternity blues" [22]. The "baby blues" affects nearly 70% of women within the first 10 days postpartum; however, it is transient and does not appear to interfere with everyday functioning [2]. The "baby blues" is typically characterized by mood lability, sudden occasions of crying, irritability, and sleep difficulties that last approximately for the first 2 weeks postpartum [22]. Nonetheless, if these depressive symptoms persist for more than 2 weeks it is more likely that the mother will develop PND [22].

Postnatal depression is now recognized as a major public health concern, since it is the leading cause for maternal morbidity and mortality and has adverse long-term effects on the family as a whole and on the infant's individual emotional, cognitive [12], and growth [16] development. Concern about PND accelerates even more in the light of evidence suggesting that women with PND also suffer from anxiety or even panic attacks [2].

One of the most vulnerable populations to PND is adolescent mothers. Estimates of adolescent depression during the early postpartum period vary from 32 to 60%. Teenage mothers are also more prone to later substance use, delinquency, adverse life events, and persistent mental health problems [9], making this population worthy of clinical attention. In addition, adolescent mothers, compared to adult mothers, face a lot more hazardous conditions, such as poverty, physical or sexual abuse, and family dysfunction, combined with their immaturity, that potentially hinder the development of positive maternal self esteem [9] and thus expose their infants to worse developmental outcomes.

Risk Factors

Considerable literature on risk factors associated with PND designate that these cluster around the following six variables: socio-demographic factors, personality and psychological factors, stressful life events, social support, obstetric and biological factors [14], and factors associated with the puerperium period [10].

Socio-demographic factors include young as well as old maternal age, low socio-economic status, low educational level [14], unemployment [10], and poverty [20]. Psychological and psychiatric problems include personal and family history of depression and depression, anxiety, or both during pregnancy [2, 4, 10, 14], a history of other non-psychotic mental disorder [10, 20], antenatal emotional problems [14] and prolonged symptoms of "baby blues" [2, 4, 10, 22]. Personality and psychological factors refer to characteristics of neuroticism, introversion, perfectionism [14], obsessionality, especially with cleaning [10], dysfunctional cognitive style, high interpersonal sensitivity, attributional style [14], low self-esteem [4, 14], history of physical or sexual abuse [14], and unplanned or unwanted pregnancy [4]. Stressful live events refer to negative or stressful life events associated with pregnancy and childbirth, especially within the past year, as well as high levels of daily hassles [14]. The social support variable refers to low social support both during and after pregnancy, including poor partner relationship [10] reflected in low partner support, low availability of people to depend on during pregnancy and the early postpartum, and the woman not having close relationships with her own parents, and especially her mother [14].

Obstetric and biological factors include history of miscarriage and pregnancy termination, as well as biophysical and hormonal changes [14]. Finally, during the puerperium risk factors related to the development of PND mainly refer to the infant's behavior and

temperament [4], and most specifically to more sleeping difficulties and excessive crying [10], as well as to elevated childcare stress [4]. Moreover, PND development is related to the expectations of the mother in having more support and help during the puerperium [10].

Explanational schemes of how PND develops indicate that a single risk factor cannot predict PND. Rather, it is the combination of factors that increase the woman's vulnerability to PND [13]. In addition, it is suggested that different factors can predict PND in different assessment times [10]. Examples of such explanational schemes include the one provided by Zinga and colleagues [24] who have suggested that some women, and especially primiparous, find it difficult to transit into motherhood, especially if the pregnancy was unplanned or unwanted, and experience low self-esteem for not being able to look after their child. These subsequently lead to child temperamental difficulties and a vicious cycle develops. Moreover, others suggest that if low self-esteem is associated with perfectionism or obsessionality could predispose some women to PND, since they seem to be more vulnerable to the unplanned and unpredictable stressors of being a parent, such as night time crying [10, 14].

Additionally, it is suggested that women with inadequate social support from her partner, her family, and her friends, that provide help, esteem, and understanding [9], are more likely to develop PND, and especially if these women are immigrants experiencing more language barriers [9, 24]. On the other hand, a non-stressful antenatal environment and adequate levels of social support can have clear protective effect postnatally [9, 24].

Nonetheless, it appears that the predicting factors of PND in Africa, the Far East, and the Middle East are somehow different from those in Western societies. For example, Nakku and colleagues [15] reported that in Africa risk factors for PND included single parenthood, marital discord, divorce, and polygamy, female sex of the infant, absent of breast-feeding, as well as physical problems in the infant such as low birth-weight, ill health, and birth abnormalities. Furthermore, Rahman and Creed [21] reposted that in Nigeria as risk factors of PND include variables such as poverty, having five or more children, an uneducated husband and lack of a confidant friend; the authors also reported that poverty associated with more psychological symptoms during pregnancy predict depression persistency for 1 year after delivery. Finally, the risk factors associated with PND identified in Lebanon include lack of social support, prenatal depression, stressful life events, lifetime depression, vaginal delivery, little education, unemployment, and chronic health problems [6].

Relevance to Childhood Development

Generally, postpartum psychiatric difficulties can cause considerable family distress and disturbance, and can impair the woman's ability to function properly [20] and carry out her previous normal tasks, as well as her coping with the care of her infant [15]. Post-natal depression in particular, which is now considered as a major health problem, has been further identified as posing further implications for parenting, nurturing abilities and overall life skills [9]. More specifically, PND has been found to impact the mother-infant relationship and the mother-infant attachment and bonding, resulting in childhood developmental deficits and in adverse cognitive, emotional, and behavioral outcomes [10, 14, 15, 20].

Regarding the concept of maternal functioning, it seems that PND women show more personal, household, and social and overall functional impairment than non-PND women. PND women who cannot achieve previous functioning may be unable to shower, pay bills or even seek help for depression or other health-related matters both for themselves and their infants. In addition, functional impairment in women with PND has also been associated with poor infant growth and decreased breastfeeding in the postpartum period, even though these mothers might continue to provide good physical infant care despite symptoms of depression in the postpartum period [20].

In a study investigating the relationship between PND and everyday functioning, Posmontier [20] noted that women with PND had a trend of having more help with cooking, running errands, and physical infant care than women without PND, and that women with PND were 12 times less likely to achieve pre-pregnancy functional levels than non-depressed women. Additionally, it was shown that PPD predicted lower personal, household, and social functioning, but physical childcare did not seem to be affected. Investigating this phenomenon further, the author suggested that although women with PND provided the same level of physical infant care as non-depressed women, PND women were unable to provide necessary nurturing interactions with their infants due to poor social function. Research on this ground revealed that although mothers with PND provide similar levels of physical infant care, they are more anxious, less affectionate, less playful, less verbally interactive, less likely to read with their infants, and show less mutual attentiveness [20, 24]; consequently the children of these mothers are

more likely to experience deficits in creative play and develop insecure attachment.

Relevant to the above notion of functioning is the qualitative research conducted by Barr [3], who showed that mothers with PND were less likely to transit and adopt into their new roles of motherhood. This delay in adaptation to the new role resulted in suspended competence regarding parenting skills, which subsequently was associated with a lack of maternal-infant attachment. Barr [3] also reported that even thought depressed mothers provided physical care for their children, this was done in an unthinking, "mechanical," instinctive manner. Moreover, the participants in this study reported a reduced ability to function due to fatigue; they reported also an inability to plan ahead or even engage in a decision-making process. This inability to plan caused these women distress and diminished their confidence about their caring abilities; accordingly, the participants in the study reported that they were afraid to stay alone with the child frighten by the thought that something would go wrong. Additionally, due to the impaired mother-infant attachment, depressed mothers seemed to be frustrated struggling to find the sense of love for their children, for example they reported feeling that the child was not theirs and not wanting to be near them [3].

Additional features of PND mothers include intrusiveness and irritated behavior towards the infant [2, 24], as well as showing less sensitivity, less contingently, and more negativity to their newborn [24]. Subsequently, these lead to further long term implications for the child's development, beginning from difficulties in attachment, followed by cognitive and emotional delays, which are mediated by the severity and chronicity of maternal depression [24]. Examples of these implications come from studies investigating the mother-infant relationship, which have indicated that infants of depressed mother are less likely to look at their mothers, or show positive affect; and they also show lower physiologic reactivity.

Furthermore, it is well documented that successful parenting in infancy and early childhood can predict successful child development, and especially healthy social development [23]. Furthermore, successful parenting is believed to be influenced by the sense of parenting self efficacy (PSE), i.e., the parents' perceived efficacy to completely and effectively perform their roles as parents. High levels of self-efficacy and perceived competence in the parenting role has been positively associated with observed parenting competence, including warmth, sensitivity, and engagement, and thus positive children's developmental outcomes, whereas low self-efficacy has been associated with self-doubt, high levels of anxiety, interpreting challenges as threats, and assuming more responsibility for failure, which are reflected in parenting as discouragement and deterioration, leading to increased problem behavior in children [23]. Congruently, a study with adolescent mothers showed that maternal competence was inversely related to depression while social isolation was directly associated with depression [9].

Further research within this context, indicated that maternal depression mediates the relationship between PSE and early-onset behavior problems and conduct problems in children, suggesting that maternal depression is a potential disruptor of caregiver confidence in early childhood [23]. These findings should be alarming for the scientific community, since it is also well documented that early-onset behavior r problems are positively linked to the development of more severe conduct problems in middle childhood and adolescence, including delinquency and substance use [23].

One other concept related to PSE is that of maternal self-esteem, which is an important early parenting attribute closely associated with mother-infant bonding and subsequent effective parenting. The development of high maternal self-esteem depends on the mother's ability to interact with and care for her infant [9]. In a study among 168 teenage mothers, it appeared that elevated depressive symptoms were associated not only with low social support, which constitutes a risk factor as reported above, but also with decreased maternal confidence in caretaking ability, and thus lower maternal self-esteem [9].

In respect, adolescent mothers with low self-esteem have been found to vocalize less with their infants, to be less flexible, to be more likely to give inappropriate stimulation and to be at higher risk for child maltreatment [9]. Nevertheless, adolescent mothers form a population with special characteristics, different from those of adult mothers. More specifically, teenage mothers' abilities to parent effectively are excessively challenged by the predisposing factors of family dysfunction, emotional immaturity, life stress, poverty, sexual abuse, school failure, hopelessness, and poor social support. Moreover, depressed adolescents seem to have less confidence in their abilities to interact with and care for their children and are also more vulnerable to experience persistent as well as recurrent episodes of depression [9].

With regards to the infant's temperament, it should first be noted that infant temperament is defined as the infant's behavioral style, and particularly how the infant behaves in relationship to the environment and the care he/she receives. Subsequently, how the infant's temperament is exhibited and perceived by the mother determines the developing relationship between the infant and

mother. When there is synchrony between the mother-child dyad it is said to be "Goodness of Fit." When "Goodness of fit" is not present the infant is perceived as difficult and/or demanding by the mother and this asynchrony of the relationship makes the infant vulnerable to long-term negative outcomes. Moreover, maternal perceptions and beliefs about the attributes of the infant affect the ways she cares for her infant and the symbiotic relationship, which will subsequently support the child's cognitive development [13]. Thus, a mother with PND is more likely to feel that her interactions with her infant are negative, since her perceptions are filtered through her negative mood.

In investigating the symbiotic relationship between the mother and the infant, McGarth and colleagues [13] reported that depressed mothers were more likely to report that their infants were more difficult, compared to non-depressed mothers, and this remained stable over time, from the second to the sixth month postpartum. In order to explain their findings, the authors assumed that for a mother with PND caring for her newborn might be overwhelming, causing her excessive stress and anxiety, as well as feelings of isolation.

Other reports on the topic suggest that the negative emotional responses of a PND mother are likely to elicit feelings of fear and withdrawal in the infant, reinforcing the mother's negative perceptions [13]. Moreover, an active and demanding infant may pose a further burden on a mother who is also suffering with PND and possibly intensify the depressive symptoms the mother is experiencing, and thus leading to more negative outcomes in the child, and particularly the development of an insecure attachment between the mother and the child [13].

Concerning the issue of cognitive development, research revealed that children of depressed mothers exhibit significant intellectual deficits, but this was true only when the depression in the mother occurs within the first year postpartum [8]. Nonetheless, it is suggested that the influences for positive cognitive development, such as play, conversation, and teaching to the child specific skills, are hampered by the mother's immobilization due to PND and the impaired mother-infant attachment [8].

Furthermore, research on the familial transition of depression from the mother to her children revealed that antenatal and post-natal depression lead to increased psychiatric problems in children at 11 [19] and 16 years [18]. More specifically, Pawlby and colleagues [19] assessed 129 11-year old children of mothers who were depressed at 3 months postpartum for emotional and behavioral problems and they found that of these 129 children 31 (24%) met DSM-IV criteria for an emotional or behavioral disorder. Eleven children had emotional disorders (separation anxiety, social anxiety, depressive episode not otherwise specified), 11 had behavioral disorders (oppositional/defiant disorder, conduct disorder, attention-deficit and hyperactivity disorder) and 9 had both types of disorder. Boys and girls were equally likely to have a disorder. Moreover, these children also showed significantly higher rates of teacher-rated behavioral and emotional problems [19]. Collectively, it was estimated that the children of mothers who met criteria for postnatal depression at 3 months were 4 times more likely to suffer from a psychiatric disorder themselves at 11 years of age compared to controls, whose mothers were well following childbirth [19].

In their second study [18], with adolescents at the age of 16, data showed that 18 (14.2%) of the 127 adolescents, 14 (20.3%) girls and 4 (6.9%) boys, had a depressive disorder according to DSM-IV criteria. Ten adolescents had a major depressive disorder, which was superimposed on dysthymia. Six adolescents had a diagnosis of depression not otherwise specified, 3 of which were superimposed on dysthymia, and 2 adolescents had a diagnosis of dysthymia. Furthermore, 6 of the 18 depressed adolescents (4 girls and 2 boys) had planned or made suicide attempts. Generally, there were no significant differences in the mothers' age, parity, ethnicity, social class, educational level, or marital status at birth or at 16 years, or in the ethnicity or educational attainment of the depressed adolescents, compared with those who were not depressed, however the depressed adolescents were more likely not to live with both biological parents [18].

Most notwithstanding, however, was the finding that each depressed adolescent had been exposed to maternal depression and that adolescents who had been exposed to maternal depression at some point since conception were significantly more likely to be depressed at 16 years than adolescents who had never been exposed. In addition, it was revealed that 65% (11/18) of the adolescents with depression were initially exposed to depression during the antenatal period and that adolescents who were exposed to antenatal depression were 4.7 times more likely to have a diagnosis of depression at 16 compared to the offspring who were not so exposed [18].

Bearing in mind that history of depression during pregnancy can predict PPD and that the longer a woman is incapacitated by PPD the more she is at risk for lifelong and recurrent depression and suicide [20] Pawlby and colleagues [18] investigated the outcome in children of mothers with antenatal, postnatal and recurrent depression within their 16 years of life. Findings revealed that adolescent depression was also associated with a greater number of periods of exposure to maternal depression

and that the depressed adolescents in their sample were exposed 2.82 time periods to maternal depression compared to the 1.31 exposure times for non-depressed adolescents. Subsequent logistic regression also showed that even thought initial exposure during pregnancy predicted inverse adolescent outcome, it was no longer itself a significant predictor when account was taken for the chronic nature of the mother's depression. Rather, maternal depression in pregnancy was a strong predictor of depression in the adolescent offspring, but was mediated by subsequent periods of depression during the child's lifetime. Finally, the odds of the offspring being depressed at 16 years increased by 1.74 for every period of maternal depression from pregnancy to 16 years [18].

These two studies replicated the strong familial association between maternal and adolescent depression and also showed that women who experience depression during pregnancy are almost 10 times more likely to have a recurrence. These studies also showed that, even thought it was not the effect of maternal depression in pregnancy per se that predicted adolescent depression, most of the children who were depressed at 16 years had initially been exposed in the antenatal period (65%) and were at greater risk for future exposure because of the strong likelihood of recurrence of maternal depression later in the child's life [18]. Based on these findings, combined with the already established knowledge about the adverse outcomes related to adolescent depression, management for PND and the risk factors associated with it seem mandated.

Finally and interestingly, in non-western, developing countries one of the most adverse outcomes related to PNS is poor infant growth. Rahman and colleagues [21], in their study in Pakistan, reported that depression around childbirth is associated with impaired infant growth and development, while prolonged PPD appeared to be associated with impaired weight gain in the first year of the infant's life. Similarly, Adewuya and colleagues [1] investigated the outcome of PND in a Nigerian sample and reported that infants of depressed mothers had statistically significant poorer growth weight compared with the infants of non-depressed mothers at 3 and 6 months postpartum. Adewuya and colleagues also reported that depressed mother were more likely to stop breast-feeding earlier and that the infants experienced more physical illness, such as diarrhea and infections. However, they also hypothesized that poor growth could be related to the emotional unavailability of the mother to the child, leading to psychosocial deprivation and non-organic failure to thrive [1].

Management

When considering the subject of effective management it should firstly be acknowledged that antenatal depression and anxiety are both incapacitating and distressing conditions and therefore important to treat in their own right [14]. In the light of evidence suggesting that there is substantial likelihood that antenatal emotional problems are associated with obstetric complications including premature delivery and intra-uterine growth restriction [14], and can also predict the development of PND after childbirth pose a greater need for timely and effective management. This is also highlighted by the fact that the longer a woman is "handicapped" by functional deficits due to PND, the more she is at risk for impaired mother-infant interaction and subsequent long-term growth [16], cognitive, behavioral and emotional problems in her child [20] and the evidence suggesting that when maternal depression is treated, adverse child behaviors improve [9].

Currently, whilst postnatal depression can be neither reliably forecast nor prevented, some form of antenatal screening and assessment focused on the risk factors related to PND, such as psychiatric history, current emotional problems and social supports, is likely to benefit many pregnant women in terms of their immediate and future well-being [14]. Thus, the most appropriate element of a timely and sound management would be the identification of the risk factors that predispose an individual in developing PND and treat them before PND occurs [14]. Screening women for depression and anxiety, for example, during pregnancy and attending to these problems before childbirth would operate as a protective factor for future episodes. Indeed, there are indications to advocate for the routine screening of at risk women in the antenatal period in order to avoid, recognize and manage postpartum psychiatric morbidity and its consequence on mothers and their developing children [15]. Furthermore, because suicide due to depression is the leading cause of death among women during the perinatal period, screening for mood disorders is mandated by public health reports and professional bodies working in this clinical area [19].

During the postpartum period, clinicians should be aware that the "baby blues" can potentially lead to PND and that it might be an indicator for an already existent depressive or anxiety disorder. Thus, in the first 2 weeks following childbirth, screenings for the "baby blues," depression, and anxiety symptoms should be applied in order to identify those women who are at risk of developing clinically significant psychiatric disorders and with the intention to provide an opportunity for prevention and therapeutic intervention early in the course of the disorder [22].

Nonetheless, adequate and well designed preventive programs initiated during pregnancy and would accompany the women throughout the first 3 months after delivery are not yet available [11].

Furthermore, it is suggested that clinical assessment for functional impairment in women with PND is critically important because of its detrimental effects on family stability, health maintenance, help-seeking for depression, and social skills necessary for positive interactions with the infant, spouse, family and friends [20]. In addition, ongoing evaluations of the "goodness of fit" within the mother-infant dyad, while also exploring interventions for depressed mothers which provide guidance about interactions with their infants and the appropriateness of the infant behaviors are also recommended [13].

With regards to intervention programs, literature reveals a number of suggested strategies. One possible intervention is pharmacological treatment. However, breast-feeding can have implications when considering pharmacological treatment [2], thus this approach should be implemented only if alternative interventions have been proved ineffective. Educational initiatives, psychological interventions, dietary and hormonal supplements, and sleep management programs are just a few examples of alternative practice [24].

Educational initiatives are based on the assumption that by providing women and their families with information about what to expect during the puerperium period can reduce anxiety, and therefore minimize the impact associated with these psychosocial factors [24]. Within this context, Barr [3] suggests on-going education, counseling and support to new mothers in an attempt to facilitate them in adapting to their new maternal role, with an aim to help these women review their thinking, beliefs, and understanding about mothering and help them adapt to their new social role on a more realistic ground.

Further suggestions made by McGarth and colleagues [13] propose engraining nurses and other healthcare providers in the process of education, who will be able to teach mothers techniques, such as infant massage [17], aiming to improve maternal mood and facilitate relationships between the mother and the child. Moreover, nurses can encourage new mothers, for example, to be attentive to their total amount of sleep time or help mothers to problem solve regarding the infant's sleep wake cycle [13]. Considering the maternal-child attachment, nurses could help mothers identify the positive characteristics of their infants, support mothers in acting in ways that will promote the normal growth and development of the infant, and provide feedback and/or further guidance about the dyadic interactions and the appropriateness of the infant's behaviors in order to improve the mother–infant relationship [13].

Psychotherapeutic approaches which show some promise against PND include interpersonal therapy (IPT) and cognitive-behavioral therapy (CBT). IPT is a time-limited (up to 12 sessions) approach, primarily aiming to remit depression, to alleviate interpersonal distress, and assist the mother with building or making better use of social supports. At the beginning of therapy, the mother is educated about depression and its functional and interpersonal effects; the symptoms, safety, functioning level, and the relationships and supports of the individual are carefully assessed; a current crucial interpersonal problem related to the development of PND is chosen; and the individual is encouraged to use or recruit social supports. During the middle phase of IPT an effort is made to link interpersonal events with dispute and symptoms, issues that are in dispute as well as maladaptive patterns of communication are identified, and the individual is helped to evaluate expectations, learn to communicate her needs and emotions, and expand her understanding and perspectives, while she is also helped in learning how to better use or recruit supports. Concerning the mother-infant attachment, within the context of IPT mothers are assisted to become more attuned and responsive to their infant's during the recovery period and also to recruit or use supports to help with childcare. During the final stage of therapy, therapeutic gains are reviewed, contingency plans for the event of recurrence are discussed, and the mother is encouraged to contact a physician for early treatment. Additionally, future problems and stressors are discussed, in order to facilitate autonomous problem solving, assistance into differentiating between normal sadness from clinical depression is provided, and feelings related to the ending of therapy are openly discussed [11].

Finally, CBT as proposed by Cho and colleagues [7] is also a time-limited approach (approximately 10 sessions), designed to be applied to women at risk for PND during pregnancy and focuses on educating the individual about depression, scheduling pleasant event, and changing negative automatic thoughts to more realistic ones. Moreover, attention is placed also on components of marital interventions, in order to promote acceptance through better understanding of the personalities of one's spouse, to improve communication skills, to promote the use of I-statements, and to make and exchange a list of rewarding positive behaviors from the other spouse. During the first three sessions of therapy the focus is on educating the mother about depression, goal-setting, and increasing

pleasurable activities. During the following three sessions, the mother is taught cognitive restructuring techniques in order to become able to identify and challenge irrational and overly negative thoughts, and especially thoughts related to marital interaction. Session 7–9 focus on assisting the mother to improve marital relationships, while communication skills and behavioral exchange exercises are taught and acceptance of the other spouse is promoted. In the final session, plans for the future are discussed.

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Postpartum Depression (PPD)

▶Post-Natal Depression

Post-Traumatic Myelopathy

▶Spinal Cord Injury

Posttraumatic Stress Disorder

Magdalen Toole
NIH, Bethesda, MD, USA

Synonyms

PTSD

Definition

Posttraumatic Stress Disorder is an anxiety disorder that develops in some people after exposure to a traumatic event.

Description

Posttraumatic Stress Disorder develops in some people after they experience or witness an event during which they or others were either harmed or under serious threat of physical injury. Rape, torture, a car accident, being kidnapped, bombings, and natural disasters are all examples of events that could lead to the development of PTSD. Further, the person's response to the traumatic event must involve fear, helplessness, or horror [3]. Symptoms usually begin within 3 months of the traumatic event; however, they can emerge years later. PTSD is classified as such if symptoms last for more than a month, and cause impaired functioning in important aspects of their lives. When PTSD symptoms last for a period of less than 3 months PTSD is considered acute, however, when the symptoms persist for more than 3 months PTSD is considered chronic [3].

According to the DSM-IV-TR, to have a diagnosis of PTSD one must exhibit symptoms in three areas: intrusive recollection, avoidant/numbing, and hyper-arousal [1, 3]. Intrusive recollections are symptoms in which one re-experiences the traumatic event. This often happens through flashbacks, which are usually triggered by a sound or smell that is reminiscent of the event. For example, the smell of smoke could cause someone to relive the experience of being trapped in a burning car, during which they may lose touch with reality. Similarly, the trauma may be re-experienced at night, through dreams.

Avoidance behaviors are present in people with PTSD; they may avoid activities or places that are associated with the trauma. Also, the anniversary of the traumatic event can be especially difficult for some. Additionally, people with PTSD often become emotionally numb and lose interest in activities that they previously enjoyed. They may feel detached from loved ones and may be unable to experience certain feelings or emotions, such as love. The third group of symptoms, hyper-arousal symptoms, includes hyper-vigilance, an increased startle response, sleep disturbances, irritability, aggression, and anger [3].

Research has shown that women are more likely to develop PTSD than men [8]. It has also been found that certain genes, as well as exposure to childhood trauma, heighten the risk of developing PTSD in adulthood [6].

Relevance to Childhood Development

Studies indicate that between 15 and 43% of girls and 14 to 43% or boys have experienced one or more traumatic events. Of these children, 3–15% of girls and 1–6% of boys develop PTSD [2]. However, when studies examined high risk samples, they found that nearly all of those children who witness parental homicide or experience sexual abuse developed PTSD [2]. In children PTSD is often caused by events such as a kidnapping or a car accident, physical or sexual abuse, refugee situations, or from witnessing violent acts either on the street or in the home.

Although it has been found that children can experience the entire range of posttraumatic stress reactions that adults experience, age and developmental maturity can influence children's reactions, as well as the ways in which their symptoms manifest [3]. While adults may have feelings of fear, helplessness, and horror when faced with a traumatic experience, children may respond by behaving in a disorganized or agitated manner. Further, children might express aspects of the trauma through repetitive play, and may even reenact the trauma. Like adults, children often have frightening dreams, yet their dreams may have unrecognizable content [3, 4].

Additionally, young children may regress to earlier developmental stages as a result of having been exposed to trauma. For example, a child who had stopped the wetting bed may suddenly begin to do so again. In a way, fear can interfere with their learning. Further, because children depend on adults for protection, it may be particularly difficult for them to deal with the failure of others to protect them in the case of a traumatic event. This may lead them to become insecure about being provided with protection in the future [4].

Additionally, there are several factors that may increase or decrease the chance that a child will develop PTSD. These factors are: the severity of the traumatic event, the parent's reaction to it, and the child's physical proximity to the event [4]. Those children who experience the most severe trauma often have the most severe PTSD symptoms. Further, those who experience a greater amount of parental support and less parental distress tend to report lower levels of PTSD symptoms. The same is true for those who experience the event from a distance rather than from close proximity [4].

In conclusion, PTSD can severely affect the psychological development of children. However, parental support may help to buffer the negative effects that trauma can have on children.

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Poxidium

►Chlordiazepoxide

Practical Intelligence

Synonyms

Contextual intelligence; Street smarts

Definition

The ability to find the best fit between oneself and the demands of the environment through (a) adapting to the environment in order to meet goals, (b) changing the environment in order to meet goals, or (c) moving to a new environment in which goals can be met.

Description

Coined by Robert Sternberg as part of his triarchic theory of intelligence. He theorized that individuals create the best fit between themselves and their environment through shaping, selection, and adaptation. Shaping involves changing factors in the environment to meet the individuals needs, whereas adaptation involves making changes to oneself to better fit with the surrounding environment. Selection involves finding an alternative environment that better suits the needs of the individual. Individuals who are of high practical intelligence, even to a level of giftedness, are superb in their capacity to apply their skills and abilities in any setting, to thrive in any environment. They are intuitive and gather information from their environment to utilize and apply in new situations.

Sternberg's theory of practical intelligence has been heavily challenged by Gottfredson. In particular, Gottfredson argued that Sternberg's assertion that traditional measures of intelligence do not assess practical intelligence is inaccurate. She argued that traditional measures of intelligence correlate highly with individual characteristics and behaviors (such as survival skills and income) thought to be reflective of practical intelligence. Additionally, Gottfredson challenged Sternberg's claim that practical intelligence is distinct from general cognitive ability such as the *g* factor (i.e., Spearman's theory).

Practical intelligence is argued to be a better predictor of real world performance, or success out of school, than are traditional IQ measures. In fact, practical intelligence correlates very little with measures of academic achievement, suggesting that individuals who are academically strong may be no better at solving practical problems than are those individuals weaker in academic achievement.

Aside from Sternberg's Triarchic Abilities Test, the assessment of practical intelligence has generally involved tacit knowledge inventories, which are noted to be reliable and valid measures. In support of Sternberg's assertion, although tacit knowledge inventories have been shown to overlap to some degree with traditional measures of intelligence, the correlation between such measures is poor.

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Prader-Willi Syndrome

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Definition

Prader-Willi Syndrome (PWS) is a rare developmental disorder, afflicting approximately 1 in every 10–15,000 children, yet is the most common genetic cause of danger-to-life obesity in children [3, 4]. The symptoms of PWS are numerous and diverse; PWS is considered a spectrum disorder, meaning that not all symptoms will be observed in all affected individuals [3].

The genetic basis of PWS is complex, [1]. First reported in the 1950s, the initial discoveries of the genetic errors underlying PWS were outlined in the 1980s as being deletions on chromosome 15, but only deletions on a paternally-contributed chromosome 15 produce the PWS phenotype. Oddly enough, similar deletions on a maternally-inherited chromosome 15 produce an entirely different syndrome, that being Angelman Syndrome. This finding led to the conclusion that gene activity and expression in humans may be a function of the chromosome on which the particular copy of that gene resides. This discovery is now known as "genomic imprinting," [4]. In the 1990s, additional research indicated that PWS could also be the result of inheriting both copies of chromosome 15 from the mother, an outcome referred to as "uniparental disomy," [1, 3].

The symptoms and behavior seen with PWS are described as emerging in two stages. A website maintained by the National Institute of Child Health and Human Development lists the following:

- Stage 1: As newborns, babies with Prader-Willi can have low muscle tone, which can affect their ability to suck properly. As a result, babies may need special feeding techniques to help them eat, and infants may have problems gaining weight. As these babies grow older, their strength and muscle tone usually get better. They meet motor milestones, but are usually slower in doing so.
- Stage 2: Between the ages of 1 and 6 years old, the disorder changes to one of constant hunger and food seeking. Most people with PWS have an insatiable appetite, meaning they never feel full. In fact, their brains are telling them they are starving. They may have trouble regulating their own eating and may need external restrictions on food, including locked kitchen and food storage areas [3].

The overeating and obesity are typically described as defining features of PWS, and the likely physiological defect is in the hypothalamus of the afflicted individuals, as this brain structure has been implicated in the regulation of both appetite and satiation, [1]. Although investigations of the brains of PWS-afflicted individuals are sparse, one such study found a reduction in the number of neurons that release oxytocin as their neurotransmitter in the paraventricular nucleus of the hypothalamus, [5] [1]. Swaab et al. [5] proposed that this would disrupt the normal feedback mechanisms of hunger and satiation and account for the excessive appetite of PWS-afflicted individuals. Some of the other symptoms of PWS have been listed as being lower than normal IQ and or learning disabilities, yet some individuals with PWS have near normal IQ. Oral motor difficulties, including abnormalities in voice pitch and resonance, as well as sleep apnea have been described in PWS. Other behaviors of concern include temper tantrums, stubbornness, a dislike for changes in daily routine, repetitive behaviors and repetitive questioning. One study found that significant numbers of individuals with PWS engaged in some form of self-injurious behavior, such as picking at the skin, excessive nose picking, or self-biting, [6]. There is no cure for PWS; early and on-going interventions such as the methods of applied behavior analysis can address the behavioral deficits and excesses [2]. Human growth hormone has been used to help address the obesity and muscular deficits, [3]. If the obesity of a person with PWS is controlled, a normal life span is expected. In the absence of such interventions, a significantly shortened lifespan has been reported, [7].

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Pragmatics

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Synonyms

Natural language; Social communication; Social discourse; Social language; Social skills

Definition

Pragmatics is broadly defined as the ability to understand and use language in social-communicative contexts.

Description

Pragmatics is the area of communication function that involves the use of language in social contexts (knowing what to say, how to say it, when to say it, and where to say it). It is the ability of natural language speakers to communicate more than that which is explicitly stated and to understand another speaker's intended meaning [4]. Pragmatics includes both the verbal and nonverbal aspects of communication and may be thought of as a conversational code of conduct or a set of rules for communication [1, 2]. We learn this system of rules naturally and implicitly. If one has good pragmatic skills, he or she is able to communicate an appropriate message effectively in a real world social situation. Pragmatics involve the following social linguistic skills: (a) using language for different purposes (e.g., greeting and requesting); (b) changing language according to the needs of a listener or situation (e.g., talking differently to a peer than to an adult and speaking differently in a classroom than on a playground); (c) understanding non-literal language (e.g., metaphor, irony, figurative language, sarcasm); and (d) following rules for conversations (e.g., taking turns and staying on topic). The pragmatic aspect of language also includes appropriate eye contact, intonation, and the body movements and gestures that accompany communication.

Relevance to Childhood Development

Children must be fluent and capable in the areas of pragmatic language in order to interact and participate successfully in school [13]. When typical children engage in reciprocal conversation they are aware of the knowledge, interests and intentions of the other person, as well as the social rules which determine pragmatic competence. In contrast, children with poor pragmatic skills have significant problems using language socially in ways that are appropriate or characteristic of children their age. Many children with developmental disabilities have difficulties learning the complex rules of social interaction. For example, pragmatic language disorders are the most prominent communication deficit in children with autism spectrum disorders [3, 12].

Because social communication deficits are among the core challenges of autism spectrum disorders, an evaluation of pragmatic competence is always a vital part of the assessment process [8]. However, few standardized tests can effectively evaluate and quantify the complexity of pragmatic language. Valid norms for pragmatic development and objective criteria for performance are also limited [11, 13]. Indeed, formal testing may not identify the presence of a social pragmatic problem, thereby preventing the child from receiving the appropriate support. Assessment of pragmatic social skills requires more than a traditional standardized testing approach [6, 7]. Less formal naturalistic assessments are necessary, including observations of children's pragmatic competency in everyday contexts (e.g., classroom and playground) and the use of developmental checklists [8]. Given that pragmatic language is a critical part of everyday communication and social interaction, it is imperative that interventions for children with autism spectrum disorders focus on social linguistic skills [5, 6]. Programs designed to enhance social communicative competence include the SCERTS Model [9, 10], a comprehensive developmental-pragmatic and research-based educational approach, and the Social Thinking Curriculum [14], a social cognitive approach to understanding social communication and reciprocity.

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Pre-Academic Skills

►Learning Readiness

Precision Learning

►Standard Celeration Charting

Precision Teaching

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Synonyms

Standard celeration charting

Definition

Systematic measurement of educational performances used to make instructional decisions.

Description

Precision Teaching was originated in the 1960s by Ogden Lindsley, a student of B.F. Skinner. Lindsley's goal was to transfer the measurement systems used to study environment-behavior relations in the laboratory to teachers' use in the classroom. Precision teaching involves selecting a particular behavior to increase, such as orally reading printed words, and charting the student's performance of the skill each day [1]. Examination of trends allows the teacher to either proceed with an instructional tactic if progress is being made or make a change to instruction if progress is limited.

Fluency is a hallmark of precision teaching. Whereas educators are typically interested in students' accuracy with academic material, precision teachers also place emphasis on speed. Measuring both accuracy and speed presents a more complete picture of a student's performance. For example, a student who answers ten single-digit mathematics problems correctly in 1 min is performing very differently than a student who takes 10 min to accurately complete the same ten problems. Fluency and automaticity developed through precision teaching have the capacity to improve retention, generalization, and "endurance," or resistance to distraction.

Precision teachers measure fluency and make educational decisions using the standard celeration chart [2]. On this chart, days are represented by vertical lines and behavioral frequencies by horizontal lines. Examples of behavioral frequencies are words read correctly per minute, math problems performed incorrectly in 2 min, basketball shots made in 10 min, and lines drawn in 30 s. The range of frequencies on the chart is from one time per day to 1000 times per minute. Behavioral frequencies are plotted on a logarithmic scale. This allows the reader of the chart to observe proportional changes in behavioral frequency. For example, the change from one per minute to two per minute is the same distance on the chart as the

change from ten per minute to 20 per minute and from 100 per minute to 200 per minute. Examining frequencies over time represents celeration. Both correct behaviors and incorrect behaviors are charted and the goal is to cause acceleration of the correct behaviors and deceleration of the incorrect behaviors.

Precision teaching involves having students practice skills fluently. Precision teachers time students' performance of skills often with 1-min timings. If multiple timings for a skill occur in a day, the fastest performance is typically charted. When teachers examine performance over 3 or 4 days and fluency is not increasing, a change must be made to the instruction. This conforms to a basic tenet of precision teaching: "the child knows best." That is, when a child is not learning, it is not the fault of the child, but an indication that the teaching must change. Another tactic of precision teaching is to target tool skills, or prerequisite skills, required to perform composite skill. For example, precision teaching with a child with cerebral palsy and fine motor delays who needs to learn to write her name would involve teaching writing lines fluently to facilitate the later development of name writing.

Standard charting conventions allow readers of charts from all over the world to be able to quickly examine a chart and understand the performance displayed. Chart shares occur at the annual meetings of the Standard Celeration Society and the Association for Behavior Analysis International.

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Precocious Reading Language Disorder

►Hyperlexia

Preconception

►Prejudice

Preconventional Level

►Preconventional Moral Reasoning

Preconventional Moral Reasoning

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Synonyms

Preconventional level

Definition

Preconventional moral reasoning is the first of three levels of moral reasoning in Kohlberg's Structural Theory of Moral Development. At the preconventional level, children judge right and wrong based on external rather than internal standards, and emphasis is placed on avoiding punishment and maximizing self-interests [1, 3, 4, 5, 6].

Description

Preconventional moral reasoning is the first of three levels of moral reasoning in Kohlberg's Structural Theory of Moral Development, a cognitive-developmental approach to moral development that describes six invariant, sequential, universal, and progressively complex structural stages of moral judgment across the life-span [4]. The preconventional moral reasoning level is followed by the levels of conventional and postconventional moral reasoning. The preconventional level of moral reasoning consists of two stages, the second of which consists of a more complex and advanced sociomoral perspective than the first [4].

The first stage of preconventional moral reasoning is the Obedience and Punishment Orientation Stage (also known as Heteronomous Morality), which is Stage 1 in Kohlberg's theory of moral development [4, 6]. During this stage, children do what is right to avoid being punished by adults they perceive as larger and more powerful. At this stage, children operate from an egocentric perspective, where they are unable to separate their own point of views from those of others or are unable to consider others' interests [4, 6]. For example, a child at this stage would obey the rule "do not cross the street without mommy" out of fear of punishment for not

obeying the rule rather than an internalized understanding that the rule is in place for his or her safety.

The second stage of preconventional moral reasoning is the Naively Egocentric Orientation (also known as the Individualism, Instrumental Purpose, and Exchange Stage), which is Stage 2 in Kohlberg's theory of moral reasoning, where children judge right and wrong from a concrete individualistic perspective [4, 6]. During this stage, children become aware that others are also pursuing their own interests. Since there may be multiple conflicting interests, the right course of action is considered relative. Children tend to follow rules that are in their own best interests and to focus on fair exchanges/deals with others, where one person does a favor or something nice for someone else in order to receive the same in return [4, 6]. For example, a child may agree to share the new video game that he received as a birthday present with his friend, *only if* his friend also agrees to share his new board-game with him.

Relevance to Childhood Development

Most children under the age of 9 and some adolescents use preconventional moral reasoning, as well as many adolescents who are criminal offenders or have serious conduct problems. As an example of an application, DiBiase et al. [2] EQUIP for educators is a primary and secondary prevention program for children in grades 5–8. A portion of this program aims to prevent potential developmental delays in moral judgment (e.g., a failure to progress beyond preconventional moral reasoning), with the goal to foster more mature moral judgment and social decision-making.

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Predictor Variables

►Variables, in Experimental Developmental Research

Predisposition

►Prejudice

Preemy

►Prematurity

Preference Assessments

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Synonyms

Stimulus preference assessment

Definition

A relatively brief procedure—taking many different forms—in which a clinician or educator quickly identifies stimuli in a learner's environment which may serve as possible reinforcers in the acceleration of target behaviors (including academic skills).

Description

In order to maximize the efficacy of any reinforcement-based program, proper decision-making skills should be employed regarding the selection of the rewards used to motivate the child—especially when the child is unable to voice his/her preferences due to a developmental disability (see [1]). A common means of selecting stimuli to function as rewards is to employ some assessment of the child's preferences of activities, tangible items, edibles, or even staff and/or caregivers. Such a procedure is termed a "stimulus preference assessment." Common to all preference assessment techniques is the presentation of several potential rewards, with data taken on what choices the

child makes. These choices are then analyzed to generate a preference hierarchy. Several empirically-supported approaches to this technique have been discussed in the behavioral psychology literature. Using a single-stimulus approach [4], a clinician offers numerous items/activities individually to the child across multiple trials. The clinician records the number of times the child reaches for the item and engages in or consumes the item to generate an overall hierarchy across the stimuli. An adaptation of this procedure actually pits stimuli against one another in a two-stimulus choice format [3]. Because this choice procedure allows for greater precision in relative preference amongst the stimuli, its results are often interpreted as more valid. A third commonly used technique uses multiple stimuli in a choice format, with multiple successive choice trials wherein chosen items are removed in sequence [2]. For example, the child may make an initial choice between six items, with the next successive trial featuring a choice between the five items not chosen on the first trial. This process is repeated until only one item remains in the stimulus set. The most natural preference assessment consists of a "free-operant" procedure in which the child is provided free access to all stimuli in the assessment for a fixed period of time. The clinician then records how much time the child engages with each item in the set or how many times the child consumes/touches each item.

Relevance to Childhood Development

According to a review of scientific literature conducted by Cannella, et al. in 2005, stimulus preference assessments are generally valid predictors of reinforcing stimuli with individuals with severe to profound developmental disabilities. Due to the various communication deficits in this population, these findings highlight the effectiveness of preference assessments for individuals with developmental disabilities. Perhaps more importantly, Cannella and colleagues also found evidence that interventions providing choice amongst items identified as preferred via preference assessments led to increases in desired behaviors and reductions in problem behaviors.

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Prefix

►Morpheme

Prefrontal Cortex

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Synonyms

Anterior frontal lobes; Prefrontal region

Definition

The prefrontal cortex is found in the cortical regions of the frontal lobes, which are anterior to the primary and association motor cortices. It is divided into the dorsolateral, orbitofrontal, and medial regions. The prefrontal cortex is believed to be involved in planning complex cognitive behaviors and in the expression of personality and appropriate social behavior.

Description

The prefrontal cortex is the largest part of the *frontal lobes* and is located in their anterior region. Bidirectional linkages between the prefrontal and other brain regions exercise regulatory control over perceptual stimuli and attentional processes. Using multimodal internal, external, and contextual cues, the prefrontal cortex functions to ensure that movements and behaviors are selected at the appropriate time and place [2]. Functions of the prefrontal cortex include sustaining attention and concentration, abstract reasoning and concept formation, hypothesis testing, goal formulation, effective self-monitoring of behavior and self-awareness, inhibition of inappropriate or impulsive behaviors, and the anticipation, evaluation, and initiation of goal-directed behavior [1, 4]. These skills are commonly referred to as *executive functions*.

Children gradually develop executive skills that involve sophisticated representations about the world around them. Research examining the development of

prefrontal structures and processes in early childhood is limited. Extant studies suggest that structural maturation of the prefrontal cortex occurs rapidly during childhood, and is characterized by fractionation of age-related functions and skills. *Neural networks* purportedly organize into distinct functional systems – a process that may continue until late childhood or adolescence [7]. Complex skills develop as a result of these maturational changes, and thus the period between early and middle childhood is thought to be particularly important to the development of related processes. However, several of the functions localized within the prefrontal cortex are complex and thus involve numerous subprocesses that are associated with more than perceptual input and motor output. Behavioral manifestations of these subprocesses are therefore difficult, if not impossible, to isolate [6].

Asymmetry of Function

Consistent with lateralization of function within the left and the right hemispheres, the left prefrontal region is involved in speech and language, and the right frontal area plays a role in facial expression and nonverbal movements. Researchers have proposed that the left and right regions area associated with different aspects of memory processing. For example, the left prefrontal region is said to be involved in encoding, and the right is said to be critical to retrieval processes [8]. The left prefrontal cortex has been implicated in strategy formation, as well as in awareness of sequences and external events. The left prefrontal system is also instrumental to *working memory*. The right prefrontal system is involved in decision-making based on environmental cues. Lateralization of prefrontal function has also been found in memory processes. For example, left prefrontal activations have been observed during verbal learning in verbal working memory tasks, as well as in encoding. The right prefrontal cortex has been shown to activate during retrieval of information and in autobiographical memory.

Prefrontal Regions

There are several ways to divide the prefrontal cortex, among the most common being into the following three subregions: the dorsolateral, orbitofrontal, and medial prefrontal cortices. These subregions have varying but overlapping functions.

Both inhibitory and excitatory control are necessary for effective filtering, attending, and monitoring of information. The dorsolateral region of the brain is thought to be involved in exercising such control, as well as monitoring and integrating different cognitive processes, all of which facilitate execution of the complex tasks necessary to strategy formation and rule-governed behavior [3]. The dorsolateral region has also been associated with brief storage of data and their organization; this internalized record is referred to as *working memory*.

The medial prefrontal cortex is located posteriorly, has been implicated in planning and directing complex motor movements, and plays a role in memory function, intentionality, and attentional processes. These areas are also said to be involved in drive and emotional capacity. Recent studies have suggested that the medial region is important for aspects of social cognition, such as choice of appropriate behaviors in a given situation, as well as judging and inferring mental states of other people [5].

The orbitofrontal cortex is a large area within the frontal lobes that contains several of its own functional subregions. It receives inputs from all sensory modalities and sends output to the *amygdala* and *hypothalamus*, and facilitates physiological aspects of emotional responses. The orbitofrontal region is said to be involved in processing of unpleasant auditory stimuli, learning new visual information, and observing and attending to stimuli with affective qualities.

Damage to the Prefrontal Region

Damage to the prefrontal region has been associated with several problem behaviors, including poor initiation, impulsivity, disinhibition diminished self-awareness, emotional lability, poor judgment, misperception of social cues, difficulty with planning and the execution of goal directed behavior, and impoverished abstract thinking. Perhaps the most famous example of damage to the prefrontal cortex occurred in 1848 to Phineas T. Gage, a foreman of a railroad construction crew tasked to clearing an area for eventual placement of a rail line. Gage poured gunpowder into a drilled hole of a rock, added a fuse, and then tamped the charge down with a 13 lb. iron rod. The powder exploded with a force that shot the iron rod through the left side of his face. Gage recovered physically within approximately seven months, but was left with profound changes in personality and social functioning.

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Prefrontal Region

►Prefrontal Cortex

Pregnancy Assessment

►Prenatal Screening

Prejudgment

►Prejudice

Prejudice

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Synonyms

Bias; Bigotry; Discrimination; Partiality; Preconception; Predisposition; Prejudgment; Race; Racism

Definition

Prejudice refers to a preconceived judgment, opinion or attitude directed toward certain people based on their membership in a particular group. It is a set of attitudes, which supports, causes, or justifies discrimination. Prejudice is a tendency to over categorize.

Description

Prejudice is a preconceived attitude that has commonly been used in referring to judgments of one's race, but is also used when referring to sex, ethnicity, religion, and sexual orientation. The most comprehensive and accepted definition of prejudice was introduced by Gordon Allport [1]. Mr. Allport defined prejudice as "aversive or hostile attitude toward a person who belongs to a group, simply because he belongs to that group, and is therefore presumed to have the objectionable qualities ascribed to that group."

Prejudice can be classified into three different categories: cognitive prejudice, affective prejudice, and conative prejudice. Cognitive prejudice refers to what people believe is true, stereotypes. These beliefs include expectations, impressions, criticisms, and assumptions. Affective prejudice refers to what people dislike and like. It holds an emotional aspect of prejudice. Conative prejudice refers to how people are inclined to behave [4] and be can be observed by others through discrimination. There is a correlation between the three types of prejudice and are entwined so closely; it is impossible to define one without defining the other [7]. However, all three do not have to exist within one individual for prejudice to exist.

There are several different explanations for the origins of prejudice. One explanation considers personality as an origin of prejudice. According to the personality theory of prejudice, people are prejudice because it meets particular needs associated with their personality. These researchers theorize that certain personality types contribute to discrimination, such as closed-mindedness, dogmatism, and authoritarianism [8]. Accordingly, individuals who have developed prejudice in this manner are not just prejudice toward one group, but have a tendency to be prejudice towards anyone who does not belong to their group. Another explanation for prejudice is that it is learned and it develops through social learning. The social learning view states that negative attitudes toward different groups are acquired due to what children see and hear from parents, teachers and friends and because they are rewarded for assuming these views [2]. The media may also play a role in the social learning theory of prejudice. Many times the stereotypes that are portrayed in the media may be a person's main source of information pertaining to particular groups of people. Accordingly, prejudice can be learned through conditioning and these attitudes can develop throughout the lifespan. A third perspective is called the social identity theory. This explanation suggests that people divide their social world into two categories-us (the in-group) and them (the out-group). Contrasting beliefs and feelings are usually attached to members of one's in-group and to members of out-groups [2]. Members of the in-group are viewed

more positively while members in the out-group are viewed more negatively. Some researchers suggest that individuals may identify with specific groups in order to boost their self-esteem.

Relevance to Childhood Development

Research has found that children can differentiate among people based on racial cues as early as 3 years of age. By the age of 4 their racial awareness allows them to distinguish explicitly among members of different racial groups [6]. By the age of 4, children who belong in an ethnically dominant group are able to precisely identify the group in which they belong to, they are able to show preferences for this group, and display strong biases towards their in-group. It is believed that by around the ages of 6 and 7, these biases peek and then show a gradual decline as the child ages. However, some research indicates that the biases remain at the same level until the age of 12. It is developmentally appropriate for children to notice differences and this alone is not an issue. Problems occur when negative values are taught, learned, and attached to the differences.

Prejudice can have a negative effect on the social and moral development of children. Due to misconceptions or negative experiences a child may never socialize with someone belonging to an out-group. This child may go on believing negative things about all people belonging to particular groups and may even see a positive person belonging to an out-group as an exception. [5] believes that children taught to hate different racial, ethnic, religious, or national groups are suffering a corruption of their moral development. He states that this moral corruption satisfies the definition of psychological abuse. These children are not able to show tolerance or respect for individual differences.

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Prelinguistic Communication

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Infants are communicators long before the ability for symbolic language emerges. Although the term "prelinguistic" can generally refer to all stages prior to the emergence of language, it is typically used to refer to the period in which communication appears to be intentional, using gestures or vocalizations – usually in combination with facial expressions and actions on objects – in ways that suggest they represent messages directed to a communication partner. This period encompasses the ages of around 8–18 months in typically-developing children and usually culminates in acquisition of a burgeoning vocabulary and production of connected or multiword expressions.

The behaviors which make up prelinguistic communication rarely occur in isolation but usually consist of a bundle of behaviors across modalities. Vocal, gestural, object-related, postural, and gaze behaviors frequently co-occur.

Eye gaze, especially a pattern of directing visual attention sequentially to an object or event and a potential communication partner is often taken to be a marker of communicative intent and has a predictive relation with language outcomes [5, 9]. Development of gaze proceeds in a standard fashion, with the ability and propensity to focus on faces present at birth, although the neonate's focal range is limited to about 18 inches. Visual attention to faces or objects or events gradually becomes more flexible, and between and 10 and 15 months of age typically-developing children become capable of integrating or switching gaze between an object/event and a communication partner.

Vocal behaviors have particular communicative salience to most parents, and as any parent knows, crying is both the earliest and most enduring of these behaviors. Crying is not, however, an intentional communication

during the early months and first year of life but is instead a baby's natural response to discomfort [4]. Only at about a year of age have "fake" or intentionally communicative crying acts been noted. In fact, earlier reports that parents could identify differences in meaning in infant crying have not been replicated. It now appears that only a cry that indicates intense discomfort or an "emergency" can be differentiated from others when they are presented to parents out of context.

Although crying persists, it is not the only vocalization produced by young infants, and other "vegetative" or spontaneously emitted sounds are common [6]. The quality of these sounds is dictated primarily by the maturity of the vocal tract and articulators and progresses through stages in which sounds made at the back of the throat with lax oral articulators (cooing or gooing) are joined by vocalizations that appear to be vocal play. These include raspberries, squeals, and screeches of various kinds. Vocalizations consisting of primarily open vocal tract, or vowel, sounds change over time to include consonant-like sounds. Productions referred to as "marginal babbling" that include vocalic and slowed closures of the vocal tract emerge near the middle of the first year of life. So-called "canonical" babbling of reduplicated sounds that closely approximate the sound units of the language in a child's environment emerge somewhat later, typically around 7–10 months of age. Canonical babbling requires more flexible and quicker control of articulators and is predicated both on physical maturation and at least to some degree on the child's listening experiences. Children who are deaf, for example, are typically delayed in this stage of prelinguistic vocal development [7]. The production of consonant–vowel syllables in canonical babbling is soon followed by variegated babbling in which diverse consonant–vowel combinations occur in what sounds like an intoned utterance but as yet has no clear representational meaning.

Gestural behaviors also have strong communicative salience – from the waving of arms (and usually legs) of a young infant that, although prompted by the infant's internal state or state of arousal and clearly without a direct message being intended, is interpreted by parents and other adults as having meaning – to the showing of or pointing to an object in later infancy. Holding out or showing an object to another is a relatively early form that, combined with eye gaze, is routinely considered to be intentional. Indeed, sharing an object of attention with another is a prerequisite for successful communication, and when infants initiate joint attention around an object, they can be said to be intentionally communicating. Typically emerging between about 9 and 13 months, and having been documented in infants across multiple varied cultures [1], such behaviors correlate with other indications that the infant recognizes causal relations [3]. Use of objects in representational ways, or as tools, is another indication of the transition to understandings of causality [2].

Pointing to direct attention is perhaps the most recognizable of prelinguistic gestures and is one that persists and frequently accompanies linguistic communication throughout life. The pointing hand shape itself, with the index finger extended, has been seen during early months of life and becomes an intentional signal late in the first year or early in the second year of life [2, 8]. In prelinguistic contexts, it is especially likely to co-occur with vocalization and with eye gaze alternating between object of attention and communication partner.

According to Adamson [1], first words typically occur at about 13 months of age, but the range of emergence in typically-developing children is great. Language "onset" is often assumed to occur when about ten words are used expressively (on average at about 15 months but again with large individual variations), although by this time the child can be expected to have a significantly larger receptive vocabulary. Watt et al. [10] found that production of conventional gestures such as pointing as well as initiation and engagement in joint attention episodes predicts rates of language acquisition. In addition, language comprehension in the second year of life is predictive of later language skills.

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Premack Principle

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Definition

According to Premack's principle, highly-probable behaviors reinforce less-probable behaviors and improbable behaviors punish more probable behaviors.

Description

What is a Reinforcer?

Consider the following situations:

1. A rat presses a lever and earns a pellet of food
2. A child finishes his homework and is permitted to play a video game
3. A teenager helps with yard work, so her parents lend her the family car.

What is the reinforcer in each of these situations? Is it the food pellet, the game, the car? Or, is the reinforcer the behavior made possible by access to the object: eating, playing, or driving? What makes a reinforcer reinforcing? Traditional notions of reinforcement, such as the law of effect, describe reinforcers as anything which, presented concurrently or shortly after a response, makes that response more likely. A rat presses a lever because previous lever-presses were followed by access to food. One knows that food (or eating) is a reinforcer because when food delivery is made contingent upon lever-pressing, the rat becomes more likely to lever-press. The last sentence does not explain the one before it; they are merely different ways of saying the same thing. Is there a way to define "reinforcer" so we can predict which behaviors will be reinforcing in particular situations?

One possibility is that there are different classes of behaviors. Some are reinforcing responses, perhaps because they address needs or reduce drives. Other behaviors – operant responses – are susceptible to being reinforced. This is the trans-situational view expressed by Meehl [5]. Access to any reinforcing response could serve as a reward for any operant response: if playing video games reinforces homework completion, it should also reinforce any other behavior that is not itself a reinforcing behavior, such as vegetable-eating or tooth-brushing.

Premack [6, 7, 8] presented another possibility, namely that any behavior can serve as a reinforcer for any other behavior that occurs at a lower rate, when there are no contingencies in place [6]: "Reinforcement results when an R of a lower independent rate coincides, within temporal limits, with the stimuli governing the occurrence of an R of a higher independent rate (p. 219)."

The "independent rate" of a response (R) is the probability of an individual choosing to make that response when no other response is required prior to making it and it produces no new opportunities to make other responses. Suppose that, left to her own devices, a teenager borrows the family car for several hours every Saturday night but only does a few hours of chores per month. She will be more likely to complete her chores if she must do so in order to borrow the car. Access to the car reinforces chore completion.

Punishment

If behaviors with high independent rates reinforce behaviors with low independent rates, Premack [9] reasoned that independently-unlikely behaviors punish highly likely behaviors. Imposing chores as a consequence of using the family car should decrease the rate of car use.

Limitations of Premack's principle

The concept that more probable behaviors will reinforce less probable behaviors (and less probable behaviors punish more probable behaviors) makes it possible to predict effects of one response on another, which is an improvement over the trans-situational view. However, the predictions are not necessarily correct. One problem with this principle is that the independent rate of a response can depend on its context: other available activities and the individual's history making the response. A prediction of Premack's principle is that spontaneous contiguity – when a high-probability activity follows a low-probability activity by chance – should have the same effect as contingency (increasing the likelihood of the low-probability activity). However, it does not [8].

A typical result of Premack's experiments that cannot be explained by Premack's principle is that the reinforcing response occurs at a lower rate when it is contingent on another response than it does independently [6]. According to Premack's principle, the rate of the operant response should increase so that access to the reinforcing response equals its independent rate (or decrease so that access to the punishing response equals its independent rate). However, that may not be feasible if there is a great difference in probability of high- and low-probability responses, but there is a 1:1 contingency (for example, it takes an hour doing homework to earn an hour playing video games) between responses. A violation of Premack's principle also occurs in the opposite situation: if the

high-probability response is only slightly more likely than the low-probability response but the contingency varies, the low-probability response can actually reinforce the high-probability response [4].

Response deprivation theory [11] refines Premack's principle in a way that corrects its mistaken predictions. According to response deprivation theory, it is the baseline ratio of independent rates of behaviors that determines what happens when one becomes contingent. Response B will reinforce response A in any condition when the contingent ratio of A to B is greater than the baseline ratio.

Relevance to Childhood Development

A few of the many examples of the successful application of Premack's principle are included in the above table. In spite of the theoretical shortcomings of Premack's principle, it has proved tremendously useful in applied behavior analysis and behavior modification.

Population	Operant	Reinforcer
Nursery school children [2]	Sitting quietly and looking at the blackboard	Running and screaming
Third grade children [1]	Answering test questions	Listening to tapes
Eight, 10 and 12 year-old boys [3]	Toothbrushing	Swimming
Middle school boys [10]	Achieving academically	Playing intramural basketball

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Premature

►Prematurity
►Preterm Birth

Premature Baby

►Prematurity

Premature Birth

►Premature Infants
►Prematurity
►Preterm Birth

Premature Infant Survival

►Age of Viability

Premature Infants

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Synonyms

Premature birth; Premie; Preterm birth

Definition

An infant born prior to reaching full term. A period of 37 weeks is considered full term. Some practitioners also consider low birth weight infants, those weighting less than 5.5 pounds (2,500 grams), as premature [1]. However small for gestational age and premature birth may well occur without the other.

Description

Premature infants are frequently born developmentally immature. The two most frequent complications involve fully developed respiratory and neurological functions with a low birth weight, and it is this low birth which places them at a high risk for a variety of immediate health problems and future development problems. Research has shown that the smaller and infant is at birth, the more likely he or she will experience significant immediate and long term problems. However, it is important to note that although premature infants are at greater risk for health and developmental problems, many infants born prematurely do not experience significant immediate health complications or long term health or developmental problems due to advances in neonatal interventions. Furthermore, many infants who initially experience health complications or developmental delays overcome these health complications and appear to catch up developmentally to their later born cohorts within the first years of life. However, the risk factor of perinatal complications for these child is double that of a normal birth [3].

The Centers for Disease Control and Prevention (CDC) reported 12.7% of all births in 2005 were preterm [2]. The CDC reported that from 2002 to 2005, this rate increased approximately 9% [2]. There are a number of factors which contribute to the rise in the birth of premature babies, including more births by women over 35 years of age, increasing rates of multiple births, increased management of maternal and fetal conditions, increased substance abuse (e.g., tobacco, alcohol), and increased stress, and abnormalities in the mother's uterus or cervix, and many more [6]. Socio-economic factors of the mother, such as being poor, young, having little or no access to medical care, can also increase the risk of having a preterm birth [5].

Many premature infants have immature bodies which are not prepared to function independent of their mother. Premature infants may experience a variety of health problems after birth including breathing difficulties, heart problems, and difficulty fighting infections, among many other potential problems. Many premature infants end up spending time in a Neonatal Intensive Care Unit (NICU), a specialized department of hospitals which caters to the intensive needs of premature infants. Examples of specialized treatment for premature infants would be reducing exposure to light and noise, regulating the amount of handling of the infant by medical staff, minimizing interruptions to sleep and rest, massage, and many other considerations. In one common treatment for premature babies, called "kangaroo care," parents hold the premature baby skin-to-skin to their chest for extended periods of time, which has been found to promote improved oxygenation, body temperature regulation, breathing rate, feeding and greater overall survival rates [1, 6]. Premature infants will often spend many weeks in the hospital after birth before they are strong enough to go home. Parents of premature infants may need education by hospital staff on how best to care for their child at home in order to meet any special needs.

Children who were born premature are at risk of long term developmental problems as well, such as learning disabilities and Attention Deficit-Hyperactivity Disorder (ADHD) [4]. Children who were born prematurely tend to have more learning problems, lower achievement levels, and are more likely to be enrolled in special education programs. Many States have early intervention programs targeted toward children who fail to meet developmental milestones at appropriate ages. In addition, the National Office of Head Start funds numerous programs aimed at serving children with developmental delays to prepare them for entering school [7]. Such programs would greatly benefit premature infants who display developmental delays [3].

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Prematurity

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Synonyms

Neonate; Preemy; Premature; Premature baby; Premature birth; Preterm baby; Preterm birth

Description

A full-term birth for a human is 40 weeks gestation. Several human organs do not reach maturity until between the 34th and 37th week; therefore when an infant is born at 37 weeks gestation or before, the infant is considered premature. According to the March of Dimes, between 8% and 10% of all human births are premature using this definition.

Typically, a premature baby weighs significantly less than a full-term baby, and requires special medical care, which usually takes place in an area of the hospital called a neonatal intensive care unit (NICU). Immature infant lungs, intracranial hemorrhage (brain bleeds), jaundice, anemia, etc. are a few of the myriad complications of prematurity. Premature babies are at a higher risk for developmental challenges, physical challenges, and/or death versus infants born at full-term gestation. Early identification of these challenges is crucial in the potentially successful treatment or arrest of the developmental disorders. Currently, a baby who weighs over 800 g has better than a 90% chance of survival, while a baby who weighs less than 500 g usually has between a 40% and 50% chance.

Causes

Smoking, drinking, drugs, poor nutrition, and stress can all increase risk for prematurity. More commonly, however, prematurity is caused by non-lifestyle factors, such as structural abnormality in the uterus, multiple births, disease, or the mother's age (too old or too young).

Symptoms

In addition to being smaller, premature babies have a different appearance than full-term babies. They usually have more hair, are less active, and have shinier, more transparent skin. They may feed poorly and occasionally stop breathing. Their cry is usually weaker than that of a full-term baby, if they have the strength to cry at all.

Complications

Complications may include cerebral palsy, hydrocephaly (brain fluid accumulation), vision problems, digestive problems, brain bleeds, anemia, and low blood pressure. The child may also experience developmental delays, behavioral problems and/or cognitive issues. Many of these complications can be serious, requiring surgery, medication, and hospitalization. Some can also lead to permanent disabilities.

Treatment

In some cases, premature delivery can be stopped before the baby is born. If symptoms of early labor appear (contractions, pain, diarrhea, vaginal bleeding), the labor might be stopped with medications which relax the muscles. There is also a surgical procedure which actually sews the cervix shut, which may prevent the labor from progressing. Physicians often begin by recommending bed rest for a woman who believes she may be entering early labor.

If these measures fail to prevent the early birth, then doctors must treat the complications and work to ensure the baby's proper development. Vision, digestive, and brain problems may be addressed surgically. If the child experiences a brain bleed and/or cerebral palsy, long term physical and occupational therapy may be necessary, as well as treatment for spasticity, which may include botox injections or a baclofen pump.

Parenting in the NICU

Parenting in the NICU is much more complex then parenting at home. Despite the extra people, machinery, and activity of the NICU, it is important for parents to spend time holding their baby and bonding. In the NICU, this is called Kangaroo care. Similar to a mother kangaroo caring for its infant, as the kangaroo holds the baby in its pouch, the parent holds the child on their bare chest, making a physical connection between parent and child. Physical touch is extremely helpful for the bay's development. Another important consideration is breastfeeding. Most smaller preemies cannot breastfeed, so when possible, mothers are encouraged to pump their breast milk to make available to the baby. This provides the best food for the baby's tube feeding, and also starts the milks supply so it will be ready when the baby is ready.

Life after the NICU

Most pediatricians have three criteria for allowing a preemie to go home. She must be able to regulate her own body temperature, feed, and gain weight. But just because these conditions are met does not mean the baby or family can go home to a normal life. Premature babies

often need frequent doctor visits, extra care in the home, and may require future hospitalizations. All these demands can be very stressful for a family. Some parents seek counseling to help them deal with the challenges of this new life. Another good option is the support group. There are even online support groups which can be very helpful for busy parents when it is hard to leave the house.

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Premie

►Premature Infants

Prenatal Alcohol Exposure

►Alcohol Exposure
►Fetal Alcohol Effects

Prenatal Development

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Synonyms

Embryonic and fetal development

Definition

Prenatal development is defined as the process of growth and development within the womb from fertilization until birth. During this process, the zygote grows into an embryo and then a fetus.

Description

In the process of fertilization, a sperm cell from the male and the ovum (egg) of the female join in the female's fallopian tube in conception. The prenatal development that occurs during the 38 weeks of pregnancy is typically separated into three periods: (1) the germinal period (the period of the zygote), (2) the embryonic period (the period of the embryo), and (3) the fetal period (the period of the fetus). A different way to describe the passage of time in pregnancy is to use 3-month time periods, immediately following conception, called trimesters [1–4].

The Germinal Period

The germinal period is the period of prenatal development that takes place in the first 2 weeks after conception. During this cell division, the fertilized ovum (zygote) travels down the fallopian tube toward the uterus. This period is characterized by rapid cell division and duplication (mitosis). By the fourth day, the zygote contains more than 50 cells and is now called a blastocyst. Cells on the blastocyst form the embryonic disk, a cell mass in which the embryo will begin to develop. Additional cells on the blastocyst will eventually form the trophoblast that will later provide nutrients and support for the embryo. The blastocyst will further differentiate into multiple layers which will later become every system, organ, and body part in the human being. After moving to the uterus, the blastocyst begins the process of attaching itself to the lining of the uterine wall. Implantation occurs approximately 7–14 days after conception. During the germinal period, the placenta is formed and will be connected to the embryo by the umbilical cord. The placenta will permit food and oxygen to reach the organism and waste products to be removed. Complications that interfere with development in the germinal period result in the death of the zygote. Approximately 10–20% of fertilized eggs complete the process of implantation and continue to develop [1–4].

The Embryonic Period

The second stage of gestation, the embryonic stage, occurs between the second and eighth week of prenatal development. The rapidly growing organism implanted in the uterine wall is now called an embryo. The embryonic period is the most critical stage of prenatal development as the embryo is the most susceptible to harmful agents in the environment. In addition, this period is a critical time in the development of the brain and spinal cord. The life-support systems of the embryo that consist of the amnion, the umbilical cord, and the placenta develop rapidly. In the first week of the embryonic period, the embryonic disk forms three layers of cells: the ectoderm, the mesoderm, and the endoderm. These systems will later form the nervous system, the circulatory system, the digestive system, and other organs. Throughout the remainder of the embryonic period, these organs and major body systems

will develop rapidly. By the sixth week after conception, the embryo begins to resemble human form, begins to move slightly in the womb, and can sense its world [1–4].

The Fetal Period

The fetal period is the final stage of gestation and begins two months after conception and lasts for approximately 7 months (until birth). This period is usually marked by the appearance of the first bone cells at about eight weeks. During this time, the fetus becomes more active although physical activity declines in last 3 months of pregnancy. Physical growth and development continue and facial features become distinguishable. At three months, the genitals can be identified as male or female and at four months the structures of skin have formed. The cerebral cortex in the brain enlarges and by 6 months the fetus has developed a grasping reflex. During last 2 months of prenatal development, fatty tissues develop and increased functioning of various organ systems occurs. The age of viability, the time at which the fetus has better than average chance of survive out of the womb without special medical intervention, occurs at the 7 month mark. Although babies have been born before 24 weeks and survived, a lack of oxygen due to their immature lungs will likely negatively impact their physical, cognitive, and social/emotional development. During the fetal period, the fetus receives antibodies from mother's blood to protect against illnesses. The fetus also practices swallowing and breathing and ingests some amniotic fluid as a result. Furthermore, research suggests that the fetus appears to learn from experience during this final stage [1–4].

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Prenatal Diagnostic Methods

►Prenatal Screening

Prenatal Growth

►Prenatal Period, Stages of

Prenatal Period, Stages of

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Synonyms

Prenatal growth

Definition

Prenatal development is the process in which an *embryo* or *fetus* (or *fetus*) gestates during pregnancy. Normal prenatal development lasts about 38 weeks and is divided into three stages: *germinal*, *embryonic*, and *fetal*. During these three stages of gestation, the original single-celled *zygote* develops into an *embryo* and then *fetus* [1, 2].

Description

Germinal Stage (Pre-Embryonic Stage). Prenatal development starts from the fertilization, or the union of individual male and female gametes, and lasts until birth. Conception normally takes place in the fallopian tube. The fertilized cell, the zygote, soon divides into two, then four, then eight cells, and so on. In the germinal stage, which lasts about ten days, the zygote assumes the bumpy appearance of a mulberry and is called a *morula*. During the next four days, the morula continues its journey down the fallopian tube toward the uterus. At the same time, the morula's cells divide and the zygote becomes progressively more complex. Within 36 h from fertilization, the zygote enters a period of rapid cell division and duplication, the mitosis. By the fourth day, 60–70 cells exist and form a hollow, fluid-filled sphere, a *blastocyst*, which implants itself on the uterine wall between the seven and ninth days. As the blastocyst implants itself on the uterine wall, it further differentiates, and at the beginning of the second week, the *embryonic disk* is formed [1, 7].

The blastocyst consists of the outer cell mass, the *trophoblast*, the inner cell mass or the *embryoblast*, and the *blastocyst cavity*. The trophoblast becomes responsible for nourishing the inner layer of the blastocyst, from which the embryo and the inner embryonic membrane, the *amnion*, will develop. The trophoblast also develops an outer embryonic membrane, called the *chorion*. The cells of the amnion produce *amniotic fluid* that helps to control environmental temperature of the fetus and protects it from trauma and infection. As the amnion expands with the growth of embryo, it fuses with the chorion. Together these two layers form the *amniotic sac*, which is a fluid-filled membrane in which the fetus develops. The amniotic

sac is commonly known as the *bag of waters* or the *membranes* [2, 3].

Embryonic Stage. The second stage of gestation, the embryonic stage, lasts from the implantation of the blastocyst on the uterine wall until approximately the eighth week of pregnancy. During this time, the embryo's cells continue to multiply and begin to differentiate to form various body tissues and organs [3]. In addition, the external features of the embryo begin to develop. Due to the rapid growth and formation of the body parts that take place during this stage, the embryo becomes extremely venerable to interference with healthy development. Thus, *teratogens* such as drugs, bacteria or viral infections, and other outside influences can easily cause congenital abnormalities in the developing embryo [3, 7].

As the embryo is forming, the embryonic disk differentiates into three specialized layers of cells, called the *germ layers*. The germ layers are called the *ectoderm*, *endoderm*, and *mesoderm*. The upper layer, the ectoderm, will become the skin (only epidermis), nails, hair, teeth, sensory organs, and the nervous system including the brain and spinal cord. The lower layer, the endoderm, will form the digestive system, liver, pancreas, salivary glands, and respiratory system. Later, the middle layer, the mesoderm, will differentiate into the inner layer of skin, bones, most of the circulatory system including the heart and major blood vessels, connective tissues of the gut and integuments, muscles, reproductive system, and urinary system including the kidneys [5, 7].

After the implantation of the zygote, the *placenta* develops. The placenta is a temporary structure that functions as an organ and endocrine gland. As an organ, the placenta is responsible for the metabolism and transfer of the nutrients and wastes between the mother and the embryo or fetus. As an endocrine gland, the placenta secretes the various hormones of pregnancy. The placenta is shared by the mother and the embryo or fetus and grows throughout pregnancy. Development of the maternal blood supply to the placenta is usually complete by the end of the first trimester of pregnancy (approximately 12–13 weeks) and, thereafter, allows the transfer of nutrients and oxygen from the mother to the fetus and the transfer of waste products and carbon dioxide back from the fetus to the mother. The placenta is connected to the embryo by the *umbilical cord* [3]. The umbilical cord develops from the amnion, and is usually attached to the center of the placenta. Oxygenated blood flows from the placenta to the fetus through the large umbilical vein in the umbilical cord. Additionally, two large arteries in the umbilical cord carry fetal waste to the placenta. By the end of the embryonic stage, circulation is established and the embryo takes on human appearance with the formation of legs, arms, and a head [3, 7].

Fetal Stage. The final stage of gestation, the fetal stage, is initiated by the formation of the first bone cells. It usually starts around the ninth week and lasts to the end of pregnancy. During this stage, the fetus begins to take on characteristics of an infant, and increases its weight and length until it reaches full term. Specifically, the fetus grows from an inch-long (2.54 cm) organism weighing less than an ounce (28 g) to about a 20-inch-long (50 cm) baby weighing approximately 7.5 pounds (3,400 g) at birth. This phase is characterized by growth and refinement of existing structures and organs. Few new structures (i.e., hair, nails) appear. The exposure to teratogens in this period tends to result in functional defects rather than major morphological impairments. Additionally, during this period, fetal movement begins, and the life sustaining reflexes, such as sucking and swallowing, are established [4, 5, 7].

Between the 8 and 12th week, the fetus grows to about 3 inches in length. Activity levels also increases, as the fetus stretches its body and moves its limbs inside the womb. The genitals are forming, but the gender of the fetus is difficult to determine. Moreover, the organs, muscles, and nervous systems become organized and connected. During this period, the heartbeat can be detected with a stethoscope for the first time. Spontaneous fetal movements are present. Twelve weeks marks the end of the first trimester of pregnancy. By the end of the 12th week, the face is well formed, the genitourinary tract is completely developed, and the gender of the fetus is clearly discernible [4, 7].

In the second trimester, from the fourth to the sixth months of pregnancy, the fetus continues to grow and change. By the 16th week of intrauterine development, the fetus has increased its size considerably. At this time, the fetus is approximately 7.5 inches (19 cm) long and weighs about 3.3 ounces (100 g). Although the skeleton is still soft cartilage, the bones begin to harden, especially in the legs. In the fourth month, the fetus continues to be very active, averaging in one movement per minute, and the mother starts to experience fetal movements called *quickening*. At 20 weeks of growth, the fetus measures about 8.75 inches (22 cm) in length and weights approximately 10 ounces (300 g). The fetal heartbeat can be detected using a standard fetoscope, and the muscles of the fetus are already well developed. At 24 weeks, the fetus is about 12.5 inches (32 cm) long and weighs approximately 1.25 pounds (600 g). The structure of the eye is complete. The eyelashes and eyebrows are formed. Little subcutaneous fat exists. The alveoli (tiny air sacs) are formed in the lungs. Genitalia are well developed. Moreover, the body of the fetus is covered in fine downy fuzz,

the *lanugo*. The lanugo has a wooly appearance and it is coated with whitish cream called *vernix caseosa*, which protects the skin of the fetus [7].

During the third trimester, or last 3 months of the pregnancy, the fetus triples its weight. Also, the fetus practices some behaviors and movements, such as swallowing and breathing. With the progression gestation, fetal heart rate slows and becomes more variable. Moreover, fetal heart rate and movements become synchronized. These changes are related to the growth of the fetus and the maturation of the heart. The third trimester ends with the birth of the baby, which normally takes place around 38th week of the pregnancy [3, 4, 7].

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Prenatal Screening

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Synonyms

Assessment of major maternal and fetal risk factors; Pregnancy assessment; Prenatal diagnostic methods; Prenatal testing

Definition

Techniques used to monitor pregnancy, maternal functioning, or fetal development and identify disease or defect.

Description

Conditions that are present before birth can potentially be corrected if identified prior to delivery. The primary methods of prenatal assessment involve a medical examination and history of the mother which hold risk for the fetus. In addition, other screening tests involve:

Maternal blood test: Blood samples from the mother are taken between the 16th and 18th weeks of pregnancy [6, 7]. If these samples contain high levels of alpha fetoprotein (AFP), the women is considered at high risk for delivering children with defects in the formation of the brain or spinal cord. Further medical assessment and intervention can be taken subsequently [6].

Ultrasound or ultrasound sonography: When an ultrasound is directed into the abdomen of the mother, a sonogram is produced that provides views of the uterus, fetus, and placenta. This picture provides a view of fetal growth as well as the sex of the fetus. In addition, an ultrasound can detect multiple pregnancies, uterine abnormalities, and fetal death [1–7]. A first-trimester screen is often given between the 11th and 13th week of pregnancy which consists of a blood test and an ultrasound. Ultrasound use in excess of five times per pregnancy may increase the chance of low birthweight [1].

Sonoembryology: Sonoembryology, the use of high-frequency transvaginal probes and digital image processing, has made detection of defects possible at earlier periods of embryonic growth [4, 6].

Amniocentesis: Amniocentesis is the extraction of amniotic fluid with a syringe inserted into the woman's abdomen between the 14th and 18th weeks of pregnancy. This fluid provides information within one to two weeks on the sex of the fetus in addition to the potential for genetic deficits and chromosomal disorders. Amniocentesis is associated with a small risk of miscarriage; however, it remains the most widely used prenatal diagnostic method in the United States. Women who receive this procedure before the 15th week of pregnancy greatly increase their risk of miscarriage. In fact, the procedure causes a higher risk of morbidity than chromosomal disorders [6].

Chorionic villus sampling (*CVS*): Between the eight and 13th week of pregnancy, tissue from the ends of villi that surround the embryo can be tested for the presence of birth defects and disorders. Although results can be available within 24 h, chorionic villus sampling is rare because it is an invasive procedure that carries a greater rate of miscarriage or neonatal death than amniocentesis. In addition, chorionic villus sampling is associated with fetal limb deformity and this risk increases the earlier the procedure is administered [1, 2, 6].

Embryoscopy or Fetoscopy: The insertion of a fiber-optic viewing endoscope through the women's cervix may be able to provide early diagnosis of embryonic abnormalities as early as six weeks [1–3, 6]. A close

inspection of the fetus through the scope with a light source can aid in the identification of limb and face defects [1–3, 5].

Preimplantation genetic diagnosis: Preimplantation genetic diagnosis can be used to identify genetic defects in cells that have yet to be implanted in the mother as a part of the process of in vitro fertilization [6].

Umbilical cord sampling or *fetal blood sampling:* This technique can assess for infection, chromosomal abnormalities, metabolic disorders, and immunodeficiencies by taking a sample of the blood of the fetus through the umbilical cord. However, this technique is associated with miscarriage and several other health risks [6].

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Prenatal Testing

►Prenatal Screening

Preoccupied Attachment

►Insecure-Resistant Attachment

Preoperational Stage (Piaget)

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Definition

The second of Piaget's Jean (1896–1980) four stages of cognitive development, the preoperational stage ranges from roughly ages 2 to 7. In this stage children can verbalize thoughts but think intuitively rather than logically. The key development of this stage is learning to form internal representations.

Description

The preoperational stage occurs before children acquire operational thinking, which is the ability to use logical thought. Children in this stage can carry out overt behaviors such as counting but are not yet able to use mental operations such as adding and subtracting, which are considered internalized behaviors. The rules regarding operations are logical since they never produce contradictions, and Piaget describes preoperations as infralogical because they usually generate contradictory conclusions [1]. For instance, a child in the preoperational stage may say that the purpose of clouds is to make the wind blow, or that grass grows because bugs run around pulling at them until they grow into tall blades. Although these explanations do not sound reasonable to an adult, it is how children try to explain the mysterious natural events of everyday life.

There are two different types of internal representations: symbols and signs [2]. Children first learn to use symbols, which are personal representations of familiar objects. They may use a bucket as a hat or a towel as a cape since these symbols are similar in shape and texture to the objects they represent. Signs, however, do not resemble the objects that they represent. The word *dog* does not have any similarity to the animal except for the language that it is assigned. As children grow, they begin to use more signs than personal symbols to represent objects. Language, both verbal and written, is a common sign that is used. According to Piaget, representational thought must be present before vocalizations can be considered to be language. In this sense, thinking is not dependent on language and thinking must occur before language can be formed.

The preoperational stage has several identifying characteristics, most of which focus on what the child can not yet do instead of what he can do. One of these characteristics is egocentrism, in which a child views and understands the world only from his own point of view. The child has difficulty telling the difference between what he thinks and feels and what others think and feel. This can be seen when two children have an egocentric conversation where instead of talking to one another, the children talk around each other without appearing to pay any attention to what the other is thinking. In a sense, the children are talking to themselves while in the presence of others. After the preoperational stage egocentrism continues to decline but never fully disappears, even in adulthood.

Another example of egocentrism is a child's inability to understand spatial relations. Piaget instructed a preschooler to stand in front of a table with a model of three mountains of different sizes [3]. A doll was placed at another corner of the model and the child was asked which of a selection of pictures corresponded to the view that the doll saw of the model. The preschool children could not recognize that the doll would have a different perspective of the mountains than they did, and almost always picked the picture of their own view of the mountains.

Preschool children also do not take into consideration all of the features of an object. The child tends to focus on one feature of the object and ignore other features. If two identical glasses are filled with the same amount of water and one glass is poured into a taller, thinner glass, the child will focus on the height of the water while disregarding the width [3]. Children focus on the before and after states but ignore the processes in the middle where the same water is poured into the new glass. This concept of centration also applies to mass and number as well. When a row of eight gummi bears are spread out, a child will say that there are more bears because the row is longer, even though they watched the bears being spread out. The child centers on the length of the line instead of the number of bears in the line. This concept of centration also affects a child's ability to identify an object even if its appearance has changed. For example, putting on a mask does not make a person a witch; the person underneath the mask has not changed.

Some other characteristics of the preoperational stage include animism and one-dimensional classification. Animism refers to the belief that all things are living. Children in the first part of the preoperational stage believe any object that affects people is alive. For instance, a table is alive, and if it is scratched the table will hurt or be sad [1]. Children in the second half of the preoperational stage believe only objects that move are alive, even if they cannot move by themselves. This may mean that a car, a stone, a bicycle, and a bird are all alive because they can move, whereas a table is not alive because it cannot move. In addition, children in the preoperational stage cannot seriate objects by putting them in order of size, shape, and color. Often, a child in the later years of the preoperational stage can focus on one dimension of the objects such as color, but they will quickly become confused if asked to also separate by size and shape.

Relevance to Childhood Development

The preoperational stage assists the child in developing his sense of self and creativity. The egoism evident in this age group aids the child in determining what his needs and wants are, and as he progresses to Piaget's concrete operational stage he will begin to assimilate the feelings and opinions of others into his own mind. The child's ability to focus on a single aspect of an object and to attribute characteristics such as emotion, sensitivity, and history to these objects allows the child to create situations outside of the actual. This later develops into an ability to focus on a specific problem or aspect of a problem and to think creatively in order to find a solution to a situation or question that may otherwise seem to have none.

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Preschool Embedded Figures Test

▶Embedded Figures Test

Pre-School Programs

▶Head Start

Press

▶Media

Pressure

▶Stress

Pretend Play

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Synonyms

Dramatic play; Fantasy play; Imaginative play; Symbolic play

Definition

Pretend play is the stage of play engaged in by children who are capable of assigning action to symbolic objects. Children will take on roles, assign meaning to objects, and transform their reality into a world of its own. Pretend play creates a world in which children can express their ideas and feelings about their life, either by themselves or with others who will engage in the fantasy with them.

Description

Pretend play is a necessary component in the development of children. Pretend, or imaginative play, helps children to develop their social and emotional skills, their language skills, and their problem solving or thinking skills. Pretend play allows children to strengthen their social and emotional skills by providing them with the ability to take on the life of another person, real or imaginary. Through play, emotions that may not be acceptable in reality now become "okay." Pretend play can also expand on the child's vision of reality and increase their self-esteem. In the world of pretend, the child can be anyone or anything they can think of, they are not limited by time or space, or societal rules or constraints.

But pretend play not only strengthens a child's social and emotional skills, but their language skills as well. Through pretend play the child can experiment with his or her own language capabilities, including repeating what he or she has heard from their parents, siblings, and peers, without the fears associated with talking in front of adults. After all, they are in another world. By creating their own language during pretend play, children begin to first understand the power of language. As children grow and develop, the pretend play advances as well and not only is the spoken word enhanced but also the written word. Children will engage in school or office play, mimicking what they have seen on television or in their parents own life. Letters will be written, forms completed, "tests" taken, all before the child has ever entered a classroom. This imaginative play helps them to develop their cognitive skills on all levels.

This cognitive development includes the building of problem solving skills and abstract thinking. As children create their world of make-believe, roles need to be assigned, castles built, moats crossed, and governments elected, all of which are problems for them to solve. The creativity of children will astound if allowed to flourish. The castle can be built with popsicle sticks and rubber bands and in their minds will withstand any attack of the enemy. But should it not, they will solve the task before, set a new goal, and rebuild. Their perseverance and tenacity is incredible. The abstract thinking will also amaze. Adults look at a pile of rocks and see a pile of rocks, children see a great fort, or a volcano, or a tower to be climbed. The ability to utilize abstract or symbolic thinking is a high level thinking skill. The development of these capabilities eventually will lead to greater things such as understanding that numbers are symbolic of quantity and letters together represent words and language.

Pretend play is vital to the development of young minds. Adults interacting with children should encourage imaginative play, and provide the objects necessary to create the new worlds. A cardboard box can become the next space shuttle, the next Indy 500 winner, or a new two story home on the beach in Malibu, all that is needed is the mind of a child.

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Pretending Actions

►Symbolic Thought

Pretension Play

►Dramatic Play

Preterm Baby

►Prematurity

Preterm Birth

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Synonyms

Premature; Premature birth; Premature infants; Prematurity

Definition

Infants are considered premature if delivered prior to reaching full term. Thus, a birth is considered preterm if the baby is born prior to completing 37 weeks of gestation [4].

Description

Infants born before the pregnancy has reached term, approximately 37 weeks of gestation, is considered premature. The Centers for Disease Control and Prevention (CDC) reported 12.7 of all births in 2005 were preterm [2]. The CDC indicated that from 2002 to 2005 preterm births rose 9% and concludes this trend is due to a rise in late preterm births, those from 34 to 36 weeks gestation, which it reports rose 25% since 2000 [2]. The rise in number of preterm births is likely due to several factors, including more births by women over 35 years of age and older, increasing rates of multiple births, increased management of maternal and fetal conditions, more frequent substance abuse (e.g., tobacco, alcohol), increased stress, and abnormalities in the mother's uterus or cervix, among others. Maternal factors, such as being lower socioeconomic status (SES), age when giving birth, and inadequate access to medical care, also increase the risk of preterm birth [3, 5].

Preterm babies are at risk for numerous complications immediately after birth, as their physical development may not have prepared their bodies to function completely independent of their mother, such as breathing problems, heart problems, difficulty fighting infections, and many other health conditions [1, 6, 7]. Health complications and the procedures and medications used to treat these complications may in turn cause long term health or lifelong developmental problems [4]. Preterm babies are also at significant risk for having low birth weight, which has been related to many serious developmental problems in later life (e.g., inattention, language delays, low intelligence) [4]. The risk of serious developmental problems increases the earlier a baby is born. In addition, these babies are more likely to experience significant developmental problems in the future.

Importance to Child Development

Clinicians who work with individuals who were born preterm will want to determine the exact length of the pregnancy of that individual as it may indicate that individual's level of risk for developmental problems. As noted above, the number of risk factors associated with the pregnancy increases the likelihood the individual will experience long term developmental problems. Clinicians, therefore, consider the number of risk factors the individual's mother experienced during her pregnancy with the him or her.

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Prevention

►Early Intervention

Prevention of Mental Retardation

►Abecedarian Project

Preventive Intervention

►Antecedent Management of Behavior

Primary Auditory Cortex

►Auditory Cortex

Primary Encopresis

►Encopresis

Primary Motor Cortex

►Motor Area of the Brain

Primary Motor Dysphasia

►Expressive Dysphasia

Primary Somatosensory Cortex

►Somatic Sensory Cortex

Primary Visual Cortex

►Visual Area

Principle of Reinforcement

►Law of Effect

Principled Moral Reasoning

►Postconventional Morality

Print

►Media

Private Speech

►Self-Talk

Proactive Aggression

►Instrumental Aggression

Proactive Aggressors

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Synonyms

Bullies; Instrumental aggressors

Definition

Perpetrators that engage in aggressive behavior with the intent to obtain a reward or coerce others.

Description

Proactive aggressors are individuals that engage in aggressive behavior in a premeditated and "cold-blooded" manner with instrumental, reward focused goals. Proactive aggressors can engage in either physical or relational aggression. Bullying is considered a form of proactive aggression in which individuals in a position of power engage in repeated aggressive acts towards an individual to obtain status or dominance.

Proactive aggression has its origins in social learning theory in which individuals learn aggressive behavior through vicarious reinforcement and maintain the aggressive behavior due to its instrumental properties. In contrast to reactive, impulsive aggressors, proactive aggressors have fewer emotion regulation and attentional difficulties [2]. Although, proactive aggressors exhibit less empathy and sympathy for those who are victimized [2]. Within the social information processing framework, proactive aggressors are less likely to attribute hostile intent to peers than their reactive aggressor counterparts. However, proactive aggressors are more likely to expect a positive outcome for their aggressive behavior than reactive aggressors [1]. This overly positive expectation has been associated with an overestimation of social competencies. Proactively aggressive bullies are perceived to be more popular with their peers and better able to manipulate peer groups than reactively aggressive bullies who are often peer-rejected.

The frequency of aggressive behavior decreases over time for a vast majority of children. However, for a small group of children who engage in elevated levels of aggressive behavior, their aggression level remains stable and is predictive of negative developmental outcomes such as delinquency, criminal offending, Oppositional Defiant Disorder and Conduct Disorder [3].

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Probability Density Function

►Normal Curve

Problem-Based Learning

►Whole Language Approach

Problem-Solving

►Critical Thinking

Problem-Solving Consultation

►Behavioral Consultation

Professional Counselors

►Child Counselors
►Counselors

Profound Mental Retardation

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Synonyms

Cognitive impairment; Developmental delay; Developmental disabilities; Intellectual disability; Mental deficiency

Definition

Profound Mental Retardation (MR) is defined by the presence of significantly sub average general intellectual functioning as well as significant limitations in adaptive functioning present prior to the age of 18 years. Individuals with a diagnosis of Severe MR generally obtain IQ scores below 20–25 [1, 3, 4].

Description

Profound MR is described by *Diagnostic and statistical manual*, 4th Ed.-text Revision (2000) as impairment comparable to a range of IQ scores that fall below 20–25 [2]. Individuals with Severe MR are severely limited in the areas of intellectual functioning and adaptive skills, typically exhibiting extensive deficits in sensorimotor skills during early childhood. They are also likely to experience severe deficits or lack of functioning in the areas of self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and

work skills [2]. Symptoms are likely to manifest in both the individual's ability to master a range of cognitive skills and their ability to respond to environmental cues [5]. Individuals who fall within this diagnostic category comprise approximately 1–2% [2] of all individuals with Mental Retardation. Unique to this level of impairment is the strong likelihood of an identified etiology of genetic or neurological syndrome resulting in MR, as well as a variety of other physical and psychological symptoms present from birth or early childhood. Ambulatory and communication skills within this population are likely limited or absent entirely [2, 5]. Concurrently, the presence of additional physical impairments such as Cerebral Palsy, epilepsy, and vision or hearing difficulties have been found to increase with level of intellectual impairment [5]. Co-morbid medical complications are also common. Training within the domains of motor skills and self care can improve functioning within a supervised environment. Some individuals with profound MR are able to perform non-complex tasks with close monitoring. Extensive levels of care and support are typically required throughout their lives [2].

Relevance to Childhood Development

A diagnosis of Profound MR has weighty implications for both the child and his caretakers throughout development. Accessing services the child is entitled to often requires a working knowledge of government and school systems, including the Individuals with Disabilities Education Act (IDEA). This program provides adaptive education to all children within the least restrictive environment possible. Adaptations may also include school-provided speech, physical, or occupational therapies as appropriate. Within the family or caretaking environment, education of the parent or primary caretaker is essential regarding available resources and developmental expectations. Because the development of children with Profound MR is severely limited in most cases, families of children with this diagnosis should be aware of what it means for their child in particular [2, 3, 4]. It is imperative that the family be knowledgeable on matters of developmental expectancy as well as the amount of support the child will need through school age and beyond. Also of note is the likelihood of additional medical complications caused by, or related to MR. These conditions may affect development or opportunity for development in ways that are not expected.

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Progeria Adultorum

▶Werner Syndrome

Progeria of the Adult

▶Werner Syndrome

Progeria or Hutchinson-Gilford Syndrome

▶Progeria Syndrome

Progeria Syndrome

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Synonyms

Progeria or Hutchinson-Gilford Syndrome

Definition

Progeria syndrome is a very rare, genetic syndrome that is characterized by greatly exaggerated premature aging; an individual with progeria syndrome generally succumbs to heart attack or stroke by age 13 [6]. In more detail, progeria is a sporadically occurring, autosomal disorder meaning that only one copy of a gene is necessary for the condition [3]. To understand the basis for progeria's occurrence, a brief summary of genetic mechanism is

needed. The recipe for generating and following competent genetic instructions is relatively simple to understand. The molecule of genetic inheritance, DNA, is a string of DNA nucleotides which accords a nearly identical RNA nucleotide string. The RNA nucleotide string is itself transformed or translated into an a chain of amino acids that can become folded into a protein [2]. The alphabetical code or nucleotides for DNA and RNA are differentiated from one or the other by their chemical bases: adenine (A), cytosine (C), guanine (G), and thymine (T); in RNA, uracil (U) substitutes for thymine [2]. In the case of progeria syndrome, a genetic mistake occurs in the lamin A (LMNA) gene in that the normal genetic codon (a triplet of nucleotides) for the amino acid glycine which should be GGC (glycine GGC) is converted into glycine GGT [5, 6]. This error in glycine production results in an abnormal form of a protein lamin A, known as progerin, which itself results in a disrupted, faulty inner layer of the cell's nuclear membrane (the membrane surrounding the cell's nucleus); the inner layer of the nuclear membrane is itself known as the nuclear lamina [4].

The consequences of a faulty nuclear lamina are that the fidelity of the inner nuclear membrane is disrupted. The processes involving DNA–RNA translation and amino acid production are all internal to the cell's nucleus [1]. Production of proteins and lipids outside the nucleus is the function of the cell's endoplasmic reticulum [1]. The faulty nuclear lamina adversely affects the endoplasmic reticulum's mechanisms of communicating coherently with the genetic mechanisms inside the cell's nucleus [5]. The connection between these events and the signs and symptoms known as progeria syndrome is not completely understood [5].

As mentioned above, progeria is, fortunately, very rare. The [6] study examined 15 children, and those participants were thought to be approximately 50% of the world's known cases of progeria at that time. In the 15 participants in this study, the diagnosis of progeria was formalized at a median age of 19 months. All 15 children appeared aged when enrolled in the [6] study. Children with progeria exhibit a failure to thrive early in life, remaining small, with minimal body fat. They typically display protruding eyes, thin sclerotic skin, suffer from osteoporosis, alopecia and progressively worsening cardiac and cardiovascular impairments [5, 6] until death occurs typically due to myocardial infarction and or stroke in the early- to mid-teenage years [6].

Progeria is not the only genetic disorder typified by premature aging; two other somewhat similar conditions are Werner's syndrome and Cockayne's syndrome [5]. Despite the fact that there are no treatments for progeria, this syndrome is a condition of clinical attention as a possible model of normal aging. Apparently, abnormal lamin A protein or progerin accumulates in normal cells as a function of aging and progeria-like nuclear changes have been observed in cell cultures obtained from aged persons but whether or not progerin contributes to normal aging is not known [5, 6].

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Project Head Start

►Head Start

Projection

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Synonyms

Identification; Projective identification

Definition

Projection is a defense by which internal events such as feelings, motivations or thoughts are attributed to another person or object. The effect of this process is to prevent the individual from experiencing uncomfortable psychological states as originating within the self. Once projected

onto another, these feelings or experiences can be dealt with as an external rather than internal threat or tension. In psychological testing, projection is the process by which test-takers inject personal meaning or feelings into responses given to test items.

Description

Projection was first described by Freud who used the term in various and sometimes contradictory ways. In the scientific terms of the day, projection had to do with establishing a correspondence between two objects. In psychological terms, this generally meant a correspondence between an internal experience and an external person or object. Often the experience that was projected was an uncomfortable or conflicted felling such as anger. A child may, for example, project hostile or angry motivations onto figures or objects in his or her environment. This prevents the child from having to accommodate these feelings into his or her sense of self.

Although regarded as a primitive defense, projection is nonetheless developmentally appropriate when encountered in children. Projection allows the child to manage intense feelings that might be incompatible with their growing sense of self and need for attachment. For instance, from a child's point of view one cannot simultaneously maintain an attached, warm relationship with a parent and at the same time harbor intense anger toward this same person. By projecting this hostility outside of the self, the child is able to maintain the positive affective attachment to the parent and at the same time discharge aggressive feelings.

As children develop greater ego-strength, they are better able to integrate opposing feeling states and can begin to recognize that it is possible to have both positive and negative feelings for the same attachment object. In adults with more severe psychopathology, this ability is often compromised.

One prominent example of projection in work with children is play therapy in which the child allows toys to take on psychological roles. Often toys are placed in competition with each other representing the competitive drives within the child. A play therapist can utilize this process to help children understand and express their feelings in a controlled manner.

Finally, in psychological testing, projection occurs when an individual injects elements of their own personality into responses to test items. For example, in a storytelling task an individual might make up a story in which the characters are described as thinking and feeling in ways that are really reflections of the respondent's own feelings and thoughts.

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Projective Assessment Techniques

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Synonyms

Performance-based assessment; Personality assessment; Projectives

Definition

A broad category of psychological tests and techniques designed to measure aspects of personality and emotional functioning.

Description

Projective assessments include such diverse tools as the Rorschach Inkblot Test, Thematic Apperception Test, Roberts-2, story telling, figure drawings, and sentence completion tasks. Many contemporary assessment researchers prefer the term "performance-based assessment" in order to more accurately capture the nature of the task. Although there is a wide array of projective tests and techniques available, they are similar in so far as they require a patient to respond to some type of open-ended prompt, cue, or stimulus. Projectives are quite commonly used by clinical and school psychologists to assess their child and adolescent clients' personality style, feelings, cognitive processes, emotional distress, and global psychological functioning [1, 2].

Tests Versus Techniques

The grouping together of several different forms of assessment under the term "projective" can be misleading because these methods differ widely in terms of structure and empirical support. For example, the Rorschach Inkblot Test [3] and Hand Test [5] can rightfully be referred to as psychological *tests* (because both rely on standardized administration and scoring techniques and a normative sample) and have substantial research support in child and adolescent populations. Other projective techniques that have been subject to the same standardization (e.g., Roberts-2) [4] can also be categorized as psychological tests. In contrast, unstructured story-telling, sentence

completion, or drawings should be best thought of as psychological *techniques* because they do not rest on standardized means of administration, scoring, and interpretation.

Research Support

Because some projectives are tests and some are techniques, it is impossible to accurately describe the empirical support for this entire category of measurement. Tests such as the Rorschach, Hand Test, Naglieri's Draw-a-Person, and Roberts-2 have garnered much research support with child and adolescent populations. Like all tests, these measures are reliable and valid for some assessment questions and under some circumstances. Conversely, because projective techniques cannot be evaluated under standardized conditions, research evidence for these tools is lacking.

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Projective Identification

►Projection

Projectives

►Projective Assessment Techniques

Proprioception

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Synonyms

Kinesthesia or the kinesthetic sense

Definition

Proprioception is derived from the Latin word, *proprius* meaning, "belonging to one's self"; proprioception is one of the sensory systems often grouped together as the "somatosenses" or "body senses" [2]. In the case of proprioception, this sensory system informs us about the position and movement of our body and limbs in space. The sensory receptors of proprioception are known as proprioceptors; the main proprioceptors are muscle spindles that are stretch receptors in skeletal muscles that provide information about muscle length to the central nervous system as well as stretch receptors known as Golgi tendon organs in the ligaments connecting skeletal muscles to bones and joints [1]. Although the Golgi tendon organs are considered to be stretch receptors, they assess the contractile force of contraction being exerted by muscles. Additional proprioceptors within joints respond to the degree of force as well as the direction of a limb's movement. The muscle length detectors which lie in parallel with and inside skeletal muscles provide sensory information that does not produce conscious sensations but is instead utilized to plan and control movements [1, 2, 4, 5]. A normally functioning proprioceptive system is a prerequisite for controlled and coordinated movement; an athlete or a dancer no doubt has acquired the ability to make rapid and acute discriminations amongst the stimuli provided by their proprioceptors, even though the sensory information is largely "unconscious." An individual with proprioceptive deficits can learn to make compensatory behaviors to function more normally [3, 6].

Proprioception is a sensory mechanism that we are not aware of until it is missing or disrupted. The symptoms of proprioceptive disorder are those of a loss or deficits in sensory information pertaining to body or limb position, movement and of "ownership" [7]. An individual with damage to proprioceptors or the central nervous system mechanisms of proprioception would have symptoms of dissociation of one's limbs. A limb might be perceived as "not belonging" to the person or being disconnected from the person [6]. Besides these atypical sensory experiences, a person with disorders of the proprioceptive system would have severe deficits in the ability to initiate, terminate and or control movements, as proprioception is a major component of the timing, sequencing and coordination of movements [1]. An afflicted person would be "taken by surprise" by some of his or her own limb movements [6].

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Prosocial Behavior

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Synonyms

Altruism; Helping behavior

Definition

Prosocial behavior is commonly defined as a voluntary action that benefits another individual or group of individuals. Although the term, in its broadest sense, may refer to any positive social behavior, researchers have tended to focus on interpersonal behaviors such as helping and comforting that are performed for individuals who are perceived as needing assistance. Prosocial behavior refers to a person's action, not his or her intent; thus, prosocial behavior can be motivated by self-oriented (i.e., egoistic) and/or other-oriented (e.g., altruistic) reasons.

Description

The capacity to engage in prosocial behavior emerges at an early age and evolves during childhood and adolescence [4]. However, large individual differences have been found in children's tendencies to display prosocial emotions and behaviors in response to others. The following brief review describes some of the factors that contribute to the development of, and individual differences in, prosocial responses in children.

Age Differences

Children as young as 1 or 2 years old may appear upset when observing another individual who is sad or in distress and they may attempt to help and comfort that individual. However, early attempts to offer assistance (e.g., giving a cherished teddy bear to a sad mommy) often reflect the child's egocentrism and the inability to fully comprehend the other's perspective. The tendency to help others typically increases during childhood and adolescence, and the individual's prosocial responses tend to become more appropriate to the specific situation and target.

Age-related changes in prosocial behavior tend to be associated with increases in cognitive empathy (i.e., the capacity to take the other's perspective and to identify his or her thoughts and feelings) and affective empathy (i.e., the capacity to vicariously experience the emotions of others). Although both capacities are important in the development of prosocial behavior, the child's inclination to help and comfort has been found to be more closely associated with affective than cognitive empathy. Indeed, individuals who are skilled in perspective taking but are lacking in emotional responsiveness may use information acquired about another person's thoughts and feelings, not to assist, but to deceive and take advantage of the other.

Increases in the frequency of engaging in prosocial behavior during childhood typically are accompanied by age-related changes in moral reasoning, values, and abilities [2, 3]. Whereas young children tend to assist others for egoistic reasons (e.g., to obtain material or social rewards; to avoid disapproval), older children are more likely to help for altruistic reasons (e.g., to make the other person feel better). In addition, in comparison with their younger counterparts, older children are more likely to have internalized society's prosocial values and are more competent to perform a broad range of appropriate prosocial acts for others.

Gender Differences

Girls tend to be more emotionally responsive to others and more helpful of others than are boys. However, these gender differences are quite small and are influenced by how, and the context in which, these variables are assessed. For example, the stereotypic belief that girls are more likely than boys to respond prosocially toward others may inflate the gender difference reported in studies relying on the ratings of parents or teachers.

Biological Influences

Some theorists and researchers contend that prosocial behavior in humans reflects a pre-programmed, biological function. For example, sociobiologists view sharing and cooperation among humans as an inevitable extension of the numerous instances of helping reported within various insect and animal species. Evolutionary psychologists emphasize that prosocial acts are enacted preferentially for one's kin and are essential to the survival of one's gene pool and species. Evidence for the heritability of prosocial behavior comes from twin studies in which monozygotic (i.e., identical) twins are found to be more similar in their tendencies to engage in prosocial behavior

than are dizygotic (i.e., fraternal) twins. Although the existence of a single "prosocial gene" is unlikely, heredity may play a role in a constellation of cognitive, affective, and behavioral characteristics that have a genetic basis and contribute to individual differences in the tendency to help and comfort others.

Socialization Influences

Socialization experiences contribute to individual differences in children's tendencies to engage in prosocial behavior [1]. Parents who are loving, supportive, and satisfy their child's own emotional needs enable the child to be emotionally available and responsive to the needs of others. In addition, the development of prosocial behavior is promoted by parents who encourage their children to attend to and learn about other people's thoughts and feelings, model prosocial emotions and behaviors on a regular basis, and provide opportunities for their children to engage in (and get reinforced for) the comforting and helping of others, including siblings and peers.

The discipline technique that has been found to be most effective in encouraging the development of prosocial behavior in children has been labeled induction [5]. A parent who uses induction explains to the child why his or her behavior is inappropriate and should be changed by emphasizing the negative impact of that transgression on others. Children whose parents use induction as their primary disciplinary technique have been found to display higher levels of affective empathy and prosocial behavior (and lower levels of antisocial behavior) than children whose parents rely on love withdrawal or physical punishment to discipline. In a relevant observation, preschoolers who have a history of being physically abused by parents have been found to respond to peers' sadness and distress with anger and physical attacks rather than prosocial emotions and behaviors.

Research on the influence of prosocial television (e.g., Mr. Rogers' Neighborhood, Barney and Friends, Sesame Street) indicates that the viewing of prosocial models tends to have a modest, favorable impact on children's inclination to engage in positive social interactions with peers. Not surprisingly, a child who views a prosocial television program with an adult who encourages the child to learn the "prosocial lesson" tends to gain more from the educational experience than a child who views the program alone.

Socialization experiences within the broader culture also contribute to differences in children's prosocial behavior. Collectivistic cultures (e.g., Taiwan), which emphasize group efforts and outcomes, tend to encourage more sharing and cooperation in the home and school than do individualistic cultures (e.g., USA), which emphasize interpersonal competition and individual achievement. As might be expected, children raised in collectivistic cultures generally have been found to behave more prosocially toward peers than children raised in individualistic cultures.

Other Characteristics of Prosocial Children

In addition to the tendencies already noted (e.g., heightened affective empathy), other distinguishing characteristics of prosocial children have been identified. For example, children who engage in relatively high levels of prosocial behavior tend to be sociable, assertive, well-adjusted, and well-liked among peers. Furthermore, helpful children are able to regulate their emotions such that the emotional arousal associated with observing another's need or sadness elicits affective empathy (and prosocial behavior) rather than personal distress (and inaction or, in some cases, antisocial behavior).

Relevance to Childhood Development

Prosocial behavior, as an important expression of the child's moral development, provides a benefit to individuals, families, and society. Individual differences in the tendency to engage in prosocial behavior emerge early in childhood and are relatively consistent from preschool through adulthood. Researchers continue to explore the antecedents of prosocial behavior and the factors that influence its development and expression.

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Prosopagnosia

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Synonyms

Face blindness or facial agnosia

Definition

The term prosopagnosia is derived from the Greek word *prosopon*, meaning "face" and the Greek word *agnosia* which means "without knowledge." Prosopagnosia is a deficit in the ability to recognize faces. This disorder is one type of visual agnosia, characterized by deficits in visual perception while still having normal vision; the afflicted individuals are not blind or often not greatly visually impaired in any usual sense of these conditions. Yet individuals with visual agnosia cannot visually recognize familiar objects, [6]. Individuals with prosopagnosia cannot recognize familiar faces or even their own face in a mirror or a photograph. Individuals with this facial agnosia must "know" who they are seeing in the mirror but have difficulty accepting the fact that they cannot recognize their own face. Kolb and Whishaw [4] describe a case of a woman who only became fully cognizant of her disorder when she was "introduced" to her identical twin sister. Since the afflicted twin could not recognize her identical twin, the afflicted twin was very surprised to learn that the apparent stranger was her identical twin. Prosopagnosics can discriminate human faces from other similar images and can properly recognize facial expressions and individual facial features such as a prominent mustache; these features come to be relied upon as a means to identify individuals.

For some time, prosopagnosia was considered to be the outcome of brain injury or infection, typically said to be bilateral damage or sometimes unilateral damage, confined to the right hemisphere of regions of the cerebral cortex, specifically the lateral occipital cortex, inferior temporal cortex and or the fusiform gyrus. The latter is sometimes referred to as the facial fusiform area, [1, 2, 4]. More recently, evidence has come forward that some cases of prosopagnosia could be occur in individuals with no known history of any brain injury or infection. These cases are referred to as congenital or developmental prosopagnosia [5], and are argued to be the failure to develop facial recognition mechanisms of the brain, [1, 2].

Some researchers have argued there are specific brain areas solely for facial recognition, sometimes termed "modules," and this position is referred to as the "modular hypothesis," [1, 7]. Others have proposed that the facial fusiform area can become specialized for facial perception-recognition but it is capable of becoming specialized for whatever complex object a person spends a great deal of time staring at, and most individuals do spend a great deal of time studying faces. As a result, this position has been termed the "expertise hypothesis," [3, 8]. Another way of framing these two different perspectives on facial recognition and the relevant brain mechanisms is to ask whether the face is a special, unique stimulus for which the brain evolved specific perception-recognition mechanisms (modularity hypothesis) or whether the face is a complex stimulus but not necessarily special or unique but the brain acquires acumen in facial perception-recognition via repeated and prolonged exposure (expertise hypothesis), [1, 8]. Both positions have their respective evidence and prosopagnosia has been interpreted in terms of either position [1].

A related question is whether prosopagnosia is just another type of visual agnosia or whether it is a unique but related disorder, arguing to the proposed unique brain areas for facial perception-recognition [2]. Most often, prosopagnosia is considered to be a form of apperceptive visual agnosia. Apperceptive visual agnosia is defined as a deficit or failure to perceive objects even though visual acuity is relatively unimpaired [2]. Apperceptive visual agnosia has to be distinguished from associative visual agnosia which can be defined as an inability to correctly identify objects that are visually perceived, despite that observation that the objects can be drawn or matched against similar objects [2]. The detailed features that distinguish these two disorders is beyond the scope of this short definition.

A person with prosopagnosia will never recover the ability to recognize faces by sight alone, regardless of the etiology. But as mentioned above, such a person can learn adaptive behaviors with which to recognize individuals. By learning to make discriminations among specific features of the face, body, gait, or other aspects of a person, specific individuals can be recognized.

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Protective Factors

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Synonyms

Buoyancy; Plasticity; Resilience

Definition

Factors that facilitate the attainment of positive outcomes.

Description

In the study of education and psychology researchers have investigated the role of specific factors that lead to either (a) desired outcomes such as strong academic performance and favorable social interactions or (b) undesired outcomes such as school dropout and troubles with the law. Those factors that promote the attainment of desired outcomes are referred to as "protective factors." Those factors that result in less desired outcomes are referred to as "risk factors." Risk and protective factors play a significant role within children's lives and highly influence cognitive, social, and emotional development. These factors are often the focus of prevention and early intervention approaches within child populations.

Protective factors play a critical role in the resilience some children demonstrate. These factors are often thought to exist along five dimensions: individual, family, community, school, and peer. Individual protective factors include positive temperament, high expectations, and a perception of high social support. In sum, the more protective factors that one has, the greater likelihood that they will experience positive outcomes when faced with adverse risk.

In order to gain a better understanding of how protective factors promote positive outcomes, researchers have focused their efforts on undesired outcomes such as substance abuse. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) estimates that over 17 million people in the United States abuse alcohol or suffer from alcohol dependence. However, some individuals that are faced with the risk of substance abuse are able to beat the odds. Researchers have labeled these individuals "resilient" and they focus on identifying the factors that helped those individuals overcome that obstacle. The protective factors that lead to positive outcomes for those at-risk for substance abuse include social class, high social support, parental support, self-awareness, high cognitive ability, and good coping skills. Resilient children have sparked the interests of many researchers, thus making them the focus of much research pertaining to children's development.

When resilient children encounter risk factors (environmental or genetic) they are often able to overcome those obstacles. However, the degree to which each child is vulnerable to a specific risk factor also plays an important role in resilience. Children that demonstrate characteristics that make them more vulnerable to risk factors, such as low self-esteem, are more likely to produce undesired outcomes when those risk factors are present [2]. Thus, vulnerability serves as a mediator in the interaction between protective and risk factors [3].

Throughout the investigation of protective factors many researchers have centralized their efforts on disadvantaged youth residing in poverty-stricken environments. The rational for this decision is that disadvantaged youth experience a higher level of risk factors, which places them at a higher risk for undesired outcomes. Research has shown that undesired outcomes, such as high school dropout, leads to a significant reduction in financial resources [5]. School dropouts head nearly one half of welfare families and represent one half of the prison population [2]. Thus, researchers have concentrated their efforts on this particular population because those individuals have the most to gain from research in this area.

The identification of several protective factors has facilitated the development of prevention and intervention programs for at-risk children. Mentor programs such as the Boys and Girls Club are designed to help children develop self-esteem, competency in a particular subject, and a higher level of social support than previously established. Programs of this sort help shift a child's vulnerability levels in favor of the protective factors in place. As a result of the success of these efforts on a local level many programs have expanded to the national level in an effort to carry out this same purpose in many underserved areas.

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Protein-Energy Malnutrition

►Failure to Thrive Syndrome

Prozac

►Fluoxetine

Pseudobulbar Affect (PBA)

►Emotional Lability

Psychedelics

►Hallucinogens

Psychiatric Disorders

►Psychological Disorders

Psychiatric Illness

►Emotional Disturbance

Psychoactive Drugs

►Hallucinogens

Psychoactive Medication

►Psychotropic Medication

Psychoaesthetics

►Art Therapy

Psychoanalysis

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Synonyms

Psychoanalytic Theory; Psychoanalytic treatment; Psychodynamic treatment

Description

Psychoanalysis began as the work of Sigmund Freud in 1895 [1].

Psychoanalysis is a psychological treatment based on two fundamental principles. First, that unconscious ideas and motivations underlie much of human experience, and second, that childhood experiences greatly influence later psychological functioning.

These ideas have permeated much of contemporary Western culture, and are widely accepted, including the ideas that childhood experiences influence adult character, that we are not always aware of the reasons we do things, and concepts such as the "super ego," and the "Freudian slip." However, it was the founder of Psychoanalysis, Sigmund Freud, who first proposed these profoundly influential principles at the turn of the twentieth century.

Early in his career, Freud trained and worked in Vienna as a neurologist. In his clinical practice, Freud was presented with a variety of difficult cases in which the patient's symptoms did not correspond to neuroanatomy. Patients would have paralysis of a limb with no medical explanation. For example, in "glove anesthesia," the patient experienced no feeling in the hand. However, Freud knew that due to the arrangement of nerve pathways, that pattern of numbness is not anatomically possible. In his efforts to understand this and other strange

symptoms, Freud developed a powerful theory of the human psyche, and the treatment for suffering caused by the mind. This he called "Psychoanalysis." According to psychoanalytic theory, the human psyche has powerful needs and wishes, many of which are in conflict with each other. Needs and wishes that are unacceptable to the individual are kept separate from awareness, or "unconscious" through repression or dissociation. Although out of awareness, these needs and wishes do not lose their power. Rather, they make their presence felt in symptoms and suffering.

Since Freud's time, the field of Psychoanalysis has developed from the work of one person to the work of many. As in most areas of expertise, psychoanalytic theory has expanded and evolved since its inception. and reflects the conditions of our time. In fact, it is probably now more accurate to describe "Psychoanalytic Theories [2]." For example, Interpersonal/Relational Psychoanalysis posits that the individual can only be known within a matrix of interpersonal relationships, and pays close attention to the therapist/patient relationship [3]. Self Psychology Psychoanalysis focuses on the individual's sense of vitality and resilience, and pays close attention to the therapist's attunement to the patient's experience [4]. These are only two of a number of differing psychoanalytic approaches to psychological treatment. Psychoanalysts no longer are constrained to the role of mostly silent observer, but can choose any number of ways to engage with the patient.

However varied, there are basic principles about human psychological functioning that underlie all psychoanalytic approaches:

1. Unconscious motivation: An individual's conscious thought is only the "tip of the iceberg." A majority of mental processes are not in awareness.
2. Importance of the past on present functioning: Current character and psychological functioning is greatly influenced by early childhood experiences, and develops in the context of childhood relationships.
3. Defense: The individual develops an array of skills and techniques to manage threatening psychic experience.
4. Transference: An individual responds to current relationships using templates and expectations learned in important past relationships, thus creating familiar, repetitive, and limited experiences.

Psychoanalysis has been called "The Talking Cure." Psychoanalytic technique derives from the observation that unconscious and troubling ideas show up in the communications, both verbal and non-verbal, of the patient. Treatment sessions are held multiple times per week to foster continuity and intensity. Topics of exploration are infinitely varied, and may include early history, current life, dreams, fantasies, and the experience of the treatment relationship with the psychoanalyst. Typically, the patient will recreate and re-experience with the psychoanalyst the important relationship patterns of the patient's daily life. The psychoanalyst listens to the patient's communications with a highly trained and open attention, and works to increase the patient's awareness of his/her unconscious assumptions and motivations.

This greater awareness leads to the patient learning the ways previously unconscious and inaccurate assumptions serve both to protect the patient from uncomfortable truths, and to recreate familiar, though limiting, experiences. With increased self-knowledge comes the increased ability to make new choices in life. Unlike more symptom-focused and short-term treatments, the goals of psychoanalysis are focused on improving a person's ability to lead a more satisfying life. The patient is increasingly able to deal directly with formerly distressing truths. Symptom relief is understood to occur as the underlying conflicts are gradually resolved. The results of a beneficial course of psychoanalysis are often felt in many aspects of a person's life, and can be long lasting.

It is a quote, often attributed to Freud, the inventor of psychoanalysis, that psychological health is the ability "to work and to love." These are the goals of psychoanalysis.

Relevance to Childhood Development

Psychoanalysis is theory(s) of the development – not of the human brain, but of the human mind. It is the study of how we make meaning out of everyday experiences. Psychoanalysis lays out ways in which an individual learns to relate meaningfully to others, manage emotion, strive for goals, cope with loss, and especially, develop self-understanding. Much of psychoanalytic theory concerns the immense impact the family has on the child's later psychological functioning. Knowledge of psychoanalysis can be of immense value when choosing how to support a child's healthy development.

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Psychoanalytic Theories of Development

►Object Relations Theory

Psychoanalytic Theory

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Synonyms

Psychoanalysis; Psychoanalytic treatment; Psychodynamic theory; Psychodynamic treatment

Definition

Psychoanalytic theory is an approach to understanding the human psyche, and the treatment of psychological disturbances.

Description

Sigmund Freud invented psychoanalysis as a theory of the human psyche and a treatment for psychological disturbances. Freud's work spanned the years of 1895 to 1939. Freud's theories have had profound impact on Western culture. Many of Freud's ideas, considered radical during his time, have become commonplace today. Consider the notion of unconscious mental activity. Before Freud, it was assumed that we are aware of all that we know. Today, it is generally assumed that we may have unconscious reasons for doing what we do.

As in most areas of expertise, psychoanalytic theory has expanded and evolved since its inception. In the past 100+ years, psychoanalytic theory has developed from being the work of one person into the work of many, and reflects the conditions of our time. In fact, it is probably now more accurate to describe "Psychoanalytic Theories."

Before discussing a selection of different psychoanalytic theories, it would be useful to identify unifying principles. These include:

1. Unconscious motivation: An individual's conscious thought is only the "tip of the iceberg." A majority of mental processes are not in awareness.
2. Importance of the past on present functioning: Current character and psychological functioning is greatly influenced by early childhood experiences, and develops in the context of childhood relationships.
3. Defense: The individual develops an array of skills and techniques to manage threatening psychic experience.
4. Transference: An individual responds to current relationships using templates and expectations learned in important past relationships, thus creating familiar, repetitive, and limited experiences.

The theories described below include Classical Freudian Theory, Interpersonal/Relational Theory. and Self Psychological Theory.

Classical Freudian Theory

Freud's early and groundbreaking description of the mind is the Topographical Model. Here Freud described the mind in three parts: the *unconscious*, which is the location of unacceptable thoughts; the preconscious, the contents of which are accessible to consciousness; and the conscious, which is the material that we are aware of at any particular point in time. While this theory is commonplace in today's culture, in Freud's time the notion of unconscious mental activity was radical [1].

As Freud continued his clinical and theoretical explorations, he addressed the limitations of the Topographical Model, to a large degree replacing it with what is termed the Structural Model.

Instead of dividing the mind between unconscious and conscious, Freud's structural theory of the mind described three separate agencies, all to a great extent unconscious. The id is a "seething cauldron" of impulsive "excitation" and raw energy looking for expression. The ego is in charge of regulating the energy of the id, and interfacing with the reality of the external world [3]. The ego has been described as the "rider on the horse" which is the id. In other words, the id is the source of power, and it is the ego that regulates that power, attempting to get the maximum satisfaction possible within the constraints of the acceptable, civilized external world. If we were only id, the human species would not survive long. The superego is a collection of morals and prohibitions that have been internalized from the parents.

Freud viewed human nature as fundamentally based on biological, instinctual "drives" of sex and aggression that are constantly pressing for expression [2]. Freud described the sexual drive as present from birth, centered on the most powerfully relevant bodily zones, and evolving in stages as the individual matures. The initial "oral phase" is in infancy, in which the sexual drive is focused on the mouth, sucking, and the pleasures derived. The following phases, "anal" and "phallic" culminate in the most

mature organization, "genital." Other people are vehicles for the expression of the drives [2].

In Freud's view, the most significant developmental task is the Oedipal conflict. This occurs around the age of 5 or 6, when the focus of the child (boy) is on genital intercourse with the parent of the opposite sex (mother). The father is viewed a dangerous rival. The child experiences castration anxiety, the fear that the father will cut off the child's offending genital to maintain power. The boy resolves the Oedipal conflict by identifying with the father, and internalizing his morals and strictures. Since he can't beat his father, he joins him. This is the beginning of the super-ego. Freud had difficulty accounting for the development of women, especially of the super-ego in women. In critiques of Freudian theory, this has been a point of great contention. However, when evaluating Freud's theories, it is also useful to consider Freud's theories in the context of his time.

Classical Freudians understand the psyche and psychic development in terms of conflict, and the ability to successfully balance gratification and social requirements.

As seen in the Oedipus conflict, to exist in a social world with a measure of safety, the drives must be controlled. The ego and superego work to hide threatening and unacceptable impulses, and relegate them to the unconscious. The psyche spends a great deal of energy defending against these impulses, or allowing a small amount of gratification in disguised forms. It is the pressure from these unconscious, unacceptable, but powerful ideas that causes mysterious but distressing symptoms.

Treatment According to the Classical Freudian Model

Psychoanalytic treatment in the Freudian model aims to discover the unacceptable, drive-based thoughts that have been relegated to the unconscious, freeing them from repression so that expression through symptoms will no longer be necessary. This is called making the unconscious, conscious.

In the classical model, psychoanalytic sessions are held four or five times each week. The patient typically reclines on a couch with the analyst sitting out of view. The patient is instructed to say whatever comes to mind, without censoring, a method called "free association." As the patient talks, conflictual material appears in disguised form, often noticeable in the appearance of defenses and in the transference, where patterns of relating to significant others are erroneously applied to the relationship with the analyst. Patients are also encouraged to report dreams, which are explored for unacceptable impulses that have been allowed disguised expression. The analyst listens carefully for these thoughts and impulses and will speak to the patient about them, giving voice to the disruptive compromises the patient has made in her psychic functioning and making the unconscious conscious. As less psychic energy is used in maintaining repression, the patient will gain greater functioning and greater satisfaction in life. Troubling symptoms will no longer be as necessary for the expression of formally repressed wishes. In classical Freudian psychoanalysis, the area of examination is mainly the patient's inner world. The analyst functions more as a "blank screen" upon which the patient's relational and psychic experience can be transferred and observed. The analyst avoids being pulled into actions, for example, the gratification of the patient's wishes, or adding personal influence into the patient's free association, and works to maintain a position as a neutral observer and interpreter of the patient's psychic experience.

Interpersonal/Relational Theory

Interpersonal/Relational psychoanalysis has roots in the work of a number of psychoanalytic theorists, including Harry Stack Sullivan, Sandor Ferenczi, Erich Fromm (see entry herein), and Clara Thompson. Interpersonal/Relational theory developed in the United States and although it maintains basic Freudian psychoanalytic principles such as unconscious motivation, transference, and defense, the Interpersonal/Relational theorists moved away from Freud in a number of highly significant ways.

Freud saw conflict and psychopathology as arising from deep within the individual, and related to the strength and development of biologically based drives for sex and aggression. The Interpersonalists, beginning with Sullivan (1892–1949), see the individual as embedded in relationships from birth. Interpersonalists believe that an individual's behavior can only be meaningfully understood in its particular social context [7]. Sullivan postulated that profound, destabilizing anxiety is the cause of psychopathology, and that this anxiety is generated or "caught" from other significant people. Interpersonal/Relational psychoanalysts are also interested in "character" which is understood to be developed in the context of relationships, the most significant being early relationships with family. The individual learns which aspects of his/her potential self are acceptable to the caregivers, and which aspects trigger unacceptable anxiety in the caregivers. The child cannot risk the parent's rejection, and gradually shapes his/her "self" in a way that acknowledges the parts that are acceptable in their environment, and hides or denies the parts that are not acceptable.

This limiting of awareness is called "selective inattention," which is different than Freudian views of "the unconscious," in that information is kept out of awareness in order to maintain a particular view of interpersonal reality. According to Sullivan, "problems in living" are seen as arising from long held assumptions, limitations, and distortions about the "self-in-relationship" to others. Symptoms are viewed as efforts to manage anxiety, the underlying cause of psychopathology.

Because the Interpersonal/Relational analyst believes that the individual can be understood only in the context of interpersonal relationships, the therapy focuses on the particulars of relationships, and the thoughts and feelings that the individual is experiencing. This includes the "here and now" relationship with the analyst. It is assumed that relational patterns in the patient's life will be activated in the therapeutic relationship, and that inquiry into that experience is highly productive [6].

The analyst is often actively engaged in expanding the patient's access to previously excluded (inattended) information. This is called the "detailed inquiry." The detailed inquiry presumes that each narrative is composed both by selecting and excluding information so that the story makes sense to the teller. The analyst attempts to deconstruct the narrative through curiosity about what has been excluded. The goal is expanding awareness of previously disconnected aspects of the self. This leads to increasing the patient's self-understanding and greater flexibility and satisfaction in the world.

In contrast to the Freudian model which positions the analyst as an outside authority looking in objectively, the interpersonal analyst believes analytic neutrality is impossible due to the nature of human interaction, and considers his or her own reactions not as interference, but as essential information to be considered.

In contrast to the classical Freudian model, Interpersonal/Relational analysts range widely in the way they engage the patient. A basic principle, however, is that one person cannot be understood as a "self" in isolation, and that mutual influence is inevitable.

Self Psychology Theory

Self Psychology began with the work of Heinz Kohut (1923–1981). Kohut, a psychoanalyst working in Chicago, began as a classically oriented psychoanalyst, but over time, developed a theory and technique that broke with Freud in fundamental ways. Kohut's theory reflects the context of his time. Unlike Freud, whose world was contending with the influences of Darwin and the World Wars, Kohut spoke in the 1970's of individuals who felt they were living fragile lives without meaning. Kohut was concerned not with a patient's effort to regulate intense animal drives, but rather with an individual's sense of emptiness, inadequacy, and isolation. This theory reflects the concerns of the post-modern era, in which the search is to create personal meaning, instead of discovering an impersonal, objective, Truth.

Self Psychology shares with other psychoanalytic theories the basics of unconscious motivation, the influence of early childhood on current functioning, defense, and transference. However, these basic terms are defined and understood quite differently. Unlike Freud's conflict model, Self Psychology uses a "deficit model." Self Psychology sees psychopathology as the result of development gone awry due to parental failures.

Kohut's thinking began with his approach to patients with pathological narcissism, which he viewed as their attempt to survive without a solid, healthy "self." While Freud saw investment in the self (narcissism) as in opposition to interest in others, Kohut proposed a developmental arc of "*healthy narcissism*," in which love of the self provided a stability of self-regard and vitality that allowed for healthy love toward others. The development of healthy narcissism begins in early childhood with three particular types of experiences between child and caregiver, or "selfobject." Kohut used the term "selfobject" to emphasize that this is an "other" who is used by the child's for essential self experiences. Kohut is not concerned with the selfobject's experience as a separate being.

The first of these three essential experiences is the selfobjects "who respond to and confirm the child's innate sense of vigor, greatness and perfection [5]." When this appears in treatment, it is termed the *mirroring transference*.

The second essential selfobject experience allows the child to feel merged with an idealized, infallible, and omnipotent other, and to feel strong through that merger. In treatment, this is called the *idealizing transference*. The third essential selfobject experience is the opportunity to identify the self and the selfobject as similar in a significant way. This is called the *twinship transference*.

Kohut argued that the caregiver's attunement to the child's healthy, age-appropriate narcissistic needs is necessary. It is also necessary, and inevitable, that any caregiver will be imperfectly attuned. The world will intrude, and the child will have disappointments. In a benevolent environment, however, the child is gradually challenged and is increasingly able to cope. The self becomes less grandiose and more realistic while still maintaining internal strength. These experiences Kohut termed "*transmuting internalizations*." The intense pressures for sex and aggression outlined in Classical theory Kohut viewed as

not primary, but rather as residual evidence of struggles at the level of self [4].

Self Psychology views treatment as providing the three selfobject experiences described above, allowing the developmental process to resume its natural progression toward health. These selfobject experiences are seen as ways of meaningfully structuring the use of the selfobject. Instead of the classical method of "interpreting the infantile wish" so it can be relinquished, the self psychologist focuses on "vicarious introspection," the effort to deeply understand the patient's subjective experience. Self Psychology argues that interpreting the patient's wishes as unrealistic or distorted only causes more injury to the nascent self. The analyst also does not confront the patient with the workings of their relationship. The analyst strives to identify and maintain attunement to whichever transference is activated. Again, it is through the inevitable failures of the analyst's attunement that the patient gradually builds up the internal strength that is seen in healthy narcissism.

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Psychoanalytic Treatment

►Psychoanalysis
►Psychoanalytic Theory

Psychobiological

►Psychosomatic

Psychodrama

►Role-Playing

Psychodynamic Approaches

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Synonyms

Insight-oriented approaches

Definition

Psychodynamic approaches refer to psychotherapeutic techniques that derive from Sigmund Freud's psychoanalytic theory. These approaches focus on unconscious processes as they are manifested in the patient's current behavior. The goals of psychodynamic approaches to psychotherapy are for the patient to develop self-awareness and understanding of the influence of the past on present behavior.

A variety of different approaches to psychodynamic psychotherapy have evolved from Freud's psychoanalytic theory, and they have been clinically applied to a wide range of psychological disorders. There is a body of research that generally supports the efficacy of these approaches.

Description

Psychodynamic approaches to psychotherapy are rooted in psychodynamic therapy, the forerunner of modern therapeutic approaches. Freud's psychoanalysis is a type of psychodynamic therapy, and is based in a highly structured and layered theory of human development and interaction. Later psychodynamic theorists (Anna Freud, Heinz Kohut, Melanie Klein) studied Freud's original and later conceptions of psychoanalytic psychotherapy and formulated original therapeutic approaches based upon, but differing from, Freud's original ideas. More recently, approaches such of Brief Psychodynamic Therapy and Relational Psychodynamic Therapy have evolved to bring Freudian ideas into the twenty-first century.

There are four major schools of psychoanalytic theory, each of which has influenced psychodynamic approaches to psychotherapy. The four schools are: Freudian, Ego Psychology, Object Relations, and Self Psychology.

Freudian psychology is based on theories formulated by Sigmund Freud in the first half of the twentieth century, and is based on the idea that people are basically determined by psychic energy (drives) and by early childhood experiences. The essence of Freud's theory is that sexual and aggressive energies originating in the id (or unconscious) are central in present behavior. These energies are modulated by the ego, which is a set of functions that moderates between the id and external reality. Defense mechanisms parts of the ego that operate to minimize pain and to maintain psychic equilibrium. The superego, formed during latency (between age 5 and puberty), operates to control id drives through guilt. Early development is of critical importance because later personality problems have their etiology in repressed childhood conflicts created by fixation at one of five psychosexual stages of childhood. Erik Erikson, an ego psychologist, expanded on Freud's notion of child development through stages, but focused on interpersonal and social, rather than sexual, development while maintaining the idea that fixation led to personality conflicts.

Ego Psychology derives from Freudian psychology. Its proponents focus their work on enhancing and maintaining ego function in accordance with the demands of reality. Ego Psychology stresses the individual's capacity for defense, adaptation, and reality testing. Leading ego psychologists who added to the theoretical model of psychoanalysis include Anna Freud (daughter of Sigmund Freud), Heinz Hartmann and Erik Erikson. Anna Freud was instrumental in introducing psychoanalysis into the treatment of children and further developed her father's conception of ego defense mechanisms. Heinz Hartmann addressed the function of the ego in psychoanalytic theory by stressing its autonomy and its ability to adapt in its dealings with the external world. Hartmann proposed a part of the ego that existed in a sphere free of conflict with the id and the superego. Erik Erikson widened the concept of life stages into adulthood and introduced social and non-sexual motives to the stages.

Object Relations psychology was first articulated by several British analysts, among them Melanie Klein, W.R.D. Fairbairn, and D.W. Winnicott. According to this theory, human beings are shaped in relation to the significant others surrounding them. Our struggles and goals in life are based on maintaining relations with others, while at the same time differentiating ourselves from others. The internal representations of self and others acquired in childhood are later played out in adult relations. Individuals repeat old object relationships in an effort to master them and become free of them.

Self Psychology was founded by Heinz Kohut, M.D., in Chicago during the 1950s. Kohut observed that the self refers to a person's perception of his experience of his self, including the presence or lack of a sense of self-esteem. The self is perceived in relation to the establishment of boundaries and the differentiations of self from others (or the lack of boundaries and differentiations).

Each of the above schools presents separate theories of personality formation, psychopathology formation and change, techniques by which to conduct therapy, and indications and contraindications for therapy. However, they all share similar therapeutic goals: to make the unconscious conscious, to reconstruct personality, to assist the client in reliving earlier experiences and working through previously repressed conflicts, and to achieve intellectual and emotional awareness [1].

These schools also have a similar approach to the therapeutic relationship, with the analyst remaining anonymous, enabling the client to develop projections toward him or her. The focus is on reducing resistances that occur when working with transference and on establishing more rational control. Clients usually undergo long-term analysis, engage in free association to reveal conflicts and gain insight by "working through." The analyst makes interpretations to teach clients the meaning of current behavior as it relates to the past.

Contemporary psychodynamic approaches, such as Brief Psychodynamic Therapy and Relational Psychodynamic Approaches have challenged many of the traditional assumptions about traditional psychodynamic theory and treatment.

A brief psychodynamic approach, such as Messer and Warren's [9, 10] Brief Psychodynamic Therapy (BPT), enables the client to examine unresolved conflicts and symptoms that arise from past dysfunctional relationships and do so in an expedited fashion. It is believed that an initial brief intervention will serve as a catalyst to an ongoing process of change without constant involvement of the therapist. A central idea of brief therapy is that there should be one major focus for the therapy rather than the more traditional psychoanalytic practice of allowing the client to associate freely and move from issue to issue. In brief therapy, the therapist and the client agree upon a central focus during the first or second session. The central focus singles out the most important issues and thus creates a structure and identifies a goal for the treatment. In brief therapy, the therapist is expected to be fairly active in keeping the session focused on the main issue. Having a clear focus makes it possible to do interpretive work in a relatively short time because the therapist only addresses the circumscribed problem area. Due to societal

pressures and the influence of managed-care companies, there is a greater demand for time-limited therapies and evidence-based practices in order to provide accountability and cost-effectiveness, and it seems likely that briefer forms of psychodynamic treatment will remain in vogue.

Relational psychodynamic approaches, such as the model developed by Steven Mitchell [11, 12], take the Freudian "one-person" approach and revise it to a "two-person" approach by re-conceptualizing the nature of the analytic relationship. The relational model is based on the exploration of the complex conscious and unconscious dynamics at play with respect to both therapist and client, and this is in contrast with the Freudian approach, which pays attention primarily to these dynamics in regard to the client. Mitchell's relational model integrates object-relations theory, systems theory, and interpersonal theory to show the various ways in which people seek attachments with other people, especially early caregivers. A relational psychodynamic approach to psychotherapy is based on the idea that therapy is an interactive process between therapist and client. This model conceptualizes counter-transference differently than the traditional Freudian model, and sees it as a rich source of information about the client's character and dynamics. Mitchell also adds a cultural notion to psychodynamic approaches by noting that the caregiver's qualities reflect the particular culture in which the person lives. He added that people are deeply embedded in their cultures, and since different cultures maintain different values, Freud's notion of universal biological drives alone may not be sufficient to explain psychic development. The lack of cultural relativity and the notion of universal biological drives are often cited as criticisms of the traditional Freudian approach.

The number of professionals who practice an exclusive form of psychodynamic therapy today is a small percentage of psychotherapists. Many psychotherapists use components of psychodynamic theories, however, in their formulation of a client's issues, while employing other types of psychological techniques (most often, cognitive-behavioral techniques) to affect change in the individual.

Sharf [13] points out several strengths of psychodynamic approaches, including the exploration, in depth, of early childhood and past as they affect current functioning, the presentation of mechanisms to understand resistance, anxiety, and ego defense mechanisms that relate to an individual's psychological functioning, the development of a framework (in the case of object-relations and self-psychology) to understand psychological disorders, and, with brief approaches, the availability to those patients who could not afford long-term therapy or psychoanalysis.

Weaknesses of psychodynamic approaches, according to Corey [1], include lengthy training for therapists (psychoanalysis only) and much time and expense for clients (Brief approaches seem to address this weakness), neglect of social, cultural, and interpersonal factors (this has been partially addressed through relational, "two-person" approaches), ineffectiveness at solving specific daily life problems of clients, lack of a multi-cultural focus, and many clients lack the ego strength needed for reconstructive past-oriented psychotherapy.

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Psychodynamic Medication

▶Psychotropic Medication

Psychodynamic Theory

▶Psychoanalytic Theory

Psychodynamic Therapy

►Dynamic Psychotherapy

Psychodynamic Treatment

►Psychoanalysis
►Psychoanalytic Theory

Psychoeducational Assessment

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Synonyms

Psychoeducational evaluation; Psychoeducational testing

Definition

A psychological assessment performed for use in a school setting, which is typically used to identify, for educational or diagnostic purposes, a student's academic strengths and weaknesses.

Description

Psychoeducational assessments are primarily conducted by school psychological staff and/or external, clinical psychologists for usage within the school context. Results of the assessment can be used to make educational identifications, e.g., academic giftedness and/or formal diagnoses, e.g., reading disability. The results can assist school staff and parents in obtaining a better understanding of a student's individual learning strengths and needs, and providing educational programming accordingly.

A typical school based referral for a psychological assessment includes the administration of a number of standardized tests. Standardized tests allow the child to be compared to broad based normative populations to evaluate the child in comparison to a group of peers [3]. The results of the testing, which may be conducted by psychometrists, are evaluated by the psychologist, along with previous test results, past history, school report cards, parent and teacher checklists and/or interviews and direct observation yielding the final assessment which may come in the form of a diagnosis of a disorder and suggestions for treatment and program planning [1, 2].

Generally, psychoeducational assessments investigate student learning difficulties, as well as evaluate other factors such as social, emotional and behavioral issues which may be contributing to the student's academic problems and/or the student's intellectual and academic learning potential [2]. At a minimum, such assessments typically involve an ethical process of obtaining informed parental consent, gathering student developmental background and academic history, as well as a formal assessment of the student's intellectual ability and academic skill development using standardized intelligence and academic achievement tests. A typical assessment will also include further testing to investigate potential areas of deficit such as memory, rapid automatized naming or fluency issues, phonological awareness, attention or executive functioning [1]. Standardized self-report questionnaires might also be used to further support test results and/or obtain quantitative data to substantiate qualitative reports from parents, teachers and the students themselves. For instance, rating scales can be used to obtain teacher, parent and student's own assessments of emotional and behavior issues, can be utilized to support areas of executive functions deficits reported by teachers and parents, and can explore student's own strengths and weaknesses in coping with challenges.

Psychoeducational assessments yield a view into a student's current intellectual functioning and development of academic skills. In this basic view, these assessments can reveal a student's individual learning styles and/or areas of intellectual and academic strengths and weaknesses, which in turn can assist school staff and parents in not only understanding but in effectively addressing the student's individual academic and intellectual learning needs and/or providing differentiated learning instruction towards optimal academic success. A standard assessment will typically reveal a student's level of higher-order intellect or verbal and nonverbal thinking and reasoning abilities [2]. Information will also be obtained on lower level cognitive processing such as auditory working memory and visual-motor processing speed. The assessment also indicates the student's academic achievement in reading, writing and math skills. Taken together, the assessment can demonstrate whether the student is functioning academically at the expected level, given the child's current intellectual ability. Discrepancies found between academic skill expectations and the student's intellectual functioning are useful data for teacher and parents, and can also highlight the need for further investigation into

potential learning issues [2]. It is not unusual for students who have learning disabilities to also be diagnosed with co-morbid disorders, such as with attention problems or mental health issues such as anxiety and depression.

The assessment data can be used to predict a student's academic learning potential and/or future intellectual and adaptive functioning. In this case, more involved testing and/or gathering of qualitative data is usually required to ensure the student meets appropriate formal diagnostic criteria (DSM-IV). The most common formal diagnostic outcomes related to psychoeducational assessments include: Specific Learning Disabilities and Global Developmental Disabilities. However, psychoeducational assessments can result in and/or contribute valuable data for diagnoses of numerous other disorders such as Autism Spectrum Disorder, Pervasive Developmental Disorders, Generalized and Specific Anxiety Disorders, Attachment Disorder, Tourette's Disorder, Attention Deficit/ Hyperactivity Disorder, etc. In these cases, more specific testing related to the diagnosis will be conducted. It is important to note that, more complex assessments, such as those involving a formal diagnosis, ideally include more elaborate testing and/or collaboration with appropriate school staff and other professionals such as speech-language pathologists, occupational therapists, pediatricians, child and youth workers, mental health professionals, neuropsychologists, medical doctors, etc.

By law, if a child has a documented disability, the child is entitled to a free, appropriate public education [1]. Once a child has been identified with an exceptionality, the child is entitled to special education services. While children may receive some special services without the identification provided via the psychoeducational assessment, the assessment is required to qualify for specialized services. An ►individualized education plan (IEP) may be developed to specify the services to be provided.

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Psychoeducational Evaluation

►Psychoeducational Assessment

Psychoeducational Testing

►Psychoeducational Assessment

Psychogenic

►Psychosomatic

Psycholinguistics

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Synonyms

Psychology of language

Definition

Psycholinguistics is the scientific discipline that aims to understand all aspects of the use of human language, including how language is acquired, how language is produced, and how language is comprehended.

Description

Psycholinguistics is a branch of cognitive science that focuses specifically on the psychological and neurobiological processes involved in the acquisition, production, and comprehension of human language. The field of cognitive science focuses broadly on the study of the mind and intelligence, embracing multiple disciplines, including computer science, psychology, neurobiology, linguistics, philosophy, and communication [1]. The field has grown in importance over the last decade, as brain imaging techniques have become widely used and as advances in computer science, information sciences, artificial intelligence and robotics have been made.

The term *psycholinguistics* is a combination of the terms *psychology* and *linguistics*. Psychology is the scientific study of mind and behavior [2]. Linguistics is the scientific study of language [3]. Noam Chomsky, a pioneer in the field of psycholinguistics, used the term *language competence* to refer to the knowledge of language and the term *language performance* to refer to the use of language. He proposed that those who have acquired a language from birth possess *language competence*, which includes knowledge of the rules of language, such as word order rules (i.e., syntax), sound rules (i.e., phonology), and rules

pertaining to meaning (i.e., semantics). In contrast, the performance of language involves putting one's knowledge of language into action using the psychological and biological mechanisms [4, 5]. Following these distinctions, psycholinguistics focuses on issues related to language performance, and linguistics focuses on issues related to language competence.

Relevance to Childhood Development

Healthy children acquire the language(s) of their home rapidly, with little direct instruction from parents and/or caregivers. Some researchers, most notably Noam Chomsky [4, 5] and Steven Pinker [6] have argued that the rapid acquisition of language occurs because some aspects of language knowledge are innate. In contrast, other researchers, such as Michael Tomasello [7], have maintained that the acquisition of language utilizes the same biological processes and mechanisms that are involved in acquisition of other cognitive skills. The debate concerning the extent to which language acquisition may be facilitated by innate knowledge is likely to continue. It is important to note that there are an increasing number of studies showing that some language disorders are heritable and have a genetic component [8].

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Psychological Abuse

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Synonyms

Child maltreatment; Emotional abuse; Psychological maltreatment; Verbal abuse

Definition

A persistent pattern of demeaning or humiliating behavior directed at a child by a caregiver.

Description

A type of abuse in which a caregiver degrades, corrupts, berates, belittles, rejects, threatens, ignores, exploits, assaults, spurns and/or terrorizes a child in a repeated pattern [1, 2]. Psychological abuse may also consist of denial of psychological treatment, extreme verbal punishment, unreasonable expectations, and/or lack of responsiveness. This pattern of behavior from caregivers may adversely affect the child cognitively, emotionally, and socially. A caregiver may make a child feel unloved, flawed, or worthless through name calling and/or scapegoating or may be unconcerned with a child's troubles [1, 5]. The presence of psychological abuse may adversely affect later development of the child including symptoms of aggression, depression, emotional dysregulation, eating disorders, substance abuse, and learning disabilities [3, 5].

A child who is being psychologically abused may present symptoms of anxiety, depression, conduct disorder, and/or personality problems. Children who are psychologically abused may also show signs of regression in development, passivity, low self-esteem, social impairment, insecure attachment to caregiver, and/or suicidal behavior [2, 3].

Problems with emotion regulation may lead to alterations in the limbic system of the brain, disrupting the child's ability to self-regulate and interact with peers [6]. Without proper intervention, children who are abused may be affected well into adulthood. As adolescents and adults, they may abuse substances, show symptoms of psychiatric disorders, and engage in criminal behavior [4].

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Psychological Age

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Synonyms

Age-equivalent; Age-related attitudes; Developmental Age; Maturity

Definition

Psychological age refers to the subjective age-equivalent of a person or how old one feels.

Description

Psychological age is how old one feels, acts, and behaves, and is thus not necessarily equal to chronological age, which is age since birth [1]. A person can therefore have a psychological age that exceeds their chronological age if they are mature or at least feel older than they really are. For example, this may be common in adolescence when young teens that feel older than they really are engage in behaviors typical of late teens and early adults. There is some indication that social maturity and achievement motivation in teens which could be associated with an advanced psychological age, for example, is associated with a parenting environment that is authoritative, emotionally warm, democratic, and firm. On the negative side, teens feeling older than they are may get involved in risk-taking behaviors that are appropriate for older individuals, and on the positive side, this may involve taking on responsibilities usually reserved for older people.

A person can also have a psychological age that is less than their chronological age if they feel or act younger than they really are, such as teens who are socially immature and children who go through developmental regression in response to a trauma. Implicit in these examples are expectations that people of different ages typically act in certain ways, and there can be generational differences in hobbies, movie preferences [3], and music that reflect these differences.

Health no doubt contributes to psychological age because the vitality of youth is associated with physical sensations of good health, and "aches and pains" are associated with the elderly. Psychological age should also reflect attitudes that are typical of people of different ages. For example, younger people generally are more positive about computers [2], facile with other forms of technology such as cell phones, and hold more liberal attitudes towards social issues like abortion, same-sex marriage, and gender-equality. An elderly person who is fluent with computer and cell-phone use, holds liberal social attitudes, and dresses like a young person may be said to have a psychological age less than their chronological age.

As these kinds of issues are difficult to quantify, the concept of psychological age is more common in the popular media than in psychological research. But the concept is based on age-related expectations of attitudes and behavior.

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Psychological Assessment

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Synonyms

Psychological testing; Psychological evaluation

Definition

Psychological assessment is the process of gathering information about a child to make informed decisions [2]. Interviewing the child (or their caregivers), observing behavior in different settings, and administering standardized tests with the child or their caregiver are all commonly used methods of gathering such information. Psychological assessment can take any or all of these forms for a particular child.

Description

Psychological assessment is vital to the training, practice, and definition of professional psychology [1]. Most psychologists engage in some type of assessment as part of their practice. Sattler [2] discussed the "four pillars of assessment", a model that is typically referenced when describing this practice.

Psychological assessment typically involves observations of the child, often in different environments (school, testing appointment, or with peers). Interviewing the child's primary caregivers is necessary for any comprehensive assessment. Interviews can either be structured or semi-structured, and are designed to guide the conversations with the caregiver to gather necessary data. Interviewing an older child (pre-teen, adolescent) is also a common practice. Administration of norm-referenced tests is an essential facet of psychological assessment. Norm-referenced tests measure a host of skills including cognitive ability, academic achievement, motor functioning, and adaptive behaviors. Finally, gathering data in more informal contexts is also necessary. Reviewing school records, homework, previous assessments, writing samples, and school district testing are all commonly used practices. At times psychological assessment is used to gather information on personality characteristics or emotional states. The use of projective measures or self-report personality scales is useful in this regard.

Upon completion of a psychological assessment, the psychologist writes a formalized report. This report is a document that includes demographic information, the reason for referral, medical history, psycho-social concerns, and formal assessment data. All the data is synthesized and interpreted, which leads to diagnostic formulations. From that interpretation recommendations are made for treatment. The report is then shared with the child's caregivers and is distributed back to the referral source.

Relevance to Childhood Development

Psychological assessments are used in a variety of settings. School districts, medical clinics, mental health centers, and the legal system all utilize psychological assessments. The psychological assessment is then used to solidify diagnoses, initiate services, place children in appropriate educational settings, make recommendations for treatment, and monitor progress over time.

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Psychological Correlates

▶Risk Factors

Psychological Disorders

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Synonyms

Behavioral disorders; Emotional disorders; Mental disorders; Mental health; Mental illness; Psychiatric disorders; Psychopathology

Definition

Psychological disorders also commonly known as mental disorders are terms used to define abnormalities in the brain's chemical functioning (physiological) and the abnormal emotional states (psychological) that impacts one's emotions, cognitions, and behavior that are considered maladaptive, causing distress in all aspects of life (e.g., social, occupational, educational, etc.), and disruptive for both the individual experiencing the symptoms or for others. Additionally, it is important to note that the term, psychological disorders, may be defined quite differently based on cultural implications and culturally defined "norms."

Description

Disorders that occur prior or during the onset of puberty around the ages of 11–12 years to the progression into early adulthood (ages 18–24) are considered psychological disorders of childhood and adolescence with the continuation into early adulthood. Young children and infants can also be subjected to developing a serious psychological disorder. A child may be predisposed genetically to develop a psychological disorder, meaning that the child received hereditary (passed down) traits or genes from the parents which would explain the biological roots. Next, it is important to take into account the concept of both nature and nurture in the development of mental health issues in youth. Many other events such as a child's family or social support network, environment, and culture molds how one develops, displays behavior, and predicts mental health well-being [4].

Family dynamics and interactions play such a large role in the emotional and physical development of children. Every child is born with unique characteristics that ultimately shape them into the person they are genetically meant to be. Children are born with different attachment styles: secure, avoidant, ambivalent, & disorganized–disoriented [1, 2], temperaments such as: easy, difficult, and slow to warm up [5, 12], and tend to

develop cognitively, emotionally, and physically at varying rates. Some more maternal factors that increase the risk for a child to develop a psychological disorder remain in the hands of the mother who decides to use alcohol, drugs, or encounters other teratogens involved in disability or illness during pregnancy. In addition, the family's medical history must be explored to assess the visibility of mental illness to predict the child's chance to also be diagnosed with a mental disorder. Psychological disorders are not always congenital, but may also develop early in a child's life due to suffering an injury, trauma, or illness.

[4] reported that when considering a child's behavior or mental health well-being you must take into account the context of familial cultural practices and traditions. These help mold and define one's values, childrearing practices, the family unit, relationship development, spiritual or religious beliefs, and the roles and rules unique to every family system. Cultural norms vary from culture to culture; hence it is vital to understand the child or adolescent's perception of how culture impacts one's worldview and the development of the self. However, as [4] noted current empirical studies have shown that no matter what the cultural practices and traditions a child may have experienced or played a key role in development; the ultimate deciding factor to healthy development on how a child or adolescent acts, thinks, and behaves remains to be the relational connection and bond (e.g., attachment) with a caregiver or parent(s). This lack of a healthy connection with a significant other or caregiver which provides both care on a nature and nurture level could implicate one's risk to develop a psychological disorder (s) in the future.

The last factor to be mentioned before the discussion of different psychological disorders, that are more prevalent in childhood or adolescence, is the concept of how environmental factors come into play with a child's mental health. We are all products and producers of our environment. As adults not only do we learn from the media, societal defined norms, and our surroundings, but children are also exposed to learning from the environment. Children learn how to act, think, and behave by observing and modeling others around them in their environment. [4] stated that children who are constantly exposed to violence whether it is in the home, in the neighborhood, or in the surrounding community are more at risk to develop anxiety, difficulty trusting others, lack of social skills, and may also display aggression. This repeated exposure to violence for children increases the risk to also develop a psychological disorder.

Psychological Disorders of Childhood and Adolescence

Attention Deficit and Disruptive Behavior Disorders

Oppositional Defiant Disorder

According to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders-IV-Text Revision [3], oppositional defiant disorder is defined when a child displays repeatedly for at least 6 months: aggression, disobedience, and hostile behavior towards adults or other authority figures. This disorder is usually evident around the age of 8 years with 2–16% percent of all children meeting diagnostic criteria for this disorder [11]. Oppositional defiant disorder is more common in boys before puberty, but tends to become equal for both sexes after reaching puberty. The outward signs and symptoms range from throwing temper tantrums, displaying intense anger, to ignoring rules, and quick to point the finger at someone else by blaming others. As one matures in age usually this disorder dissipates and is no longer an issue, if not this disorder tends to lead to a more serious disorder called, conduct disorder.

Conduct Disorder

Conduct disorder is the more severe form of conduct disorder as described earlier. [3] defined conduct disorder as when one repeatedly displays behavior that violates the basic rights of others with rules and social norms being violated. Conduct disorder most represents what we see in adults called anti-social personality disorder, which this disorder in childhood often will lead to anti-social personality disorder in adulthood. The signs and symptoms of children and adolescents exhibiting this disorder would be the following: aggression, cruelty to humans and animals, truancy (e.g., skipping school and runaways), bullying, stealing, and committing crimes. Crimes usually begin with stealing, shoplifting, forgery, but lead to more severe crimes such as breaking and entering, mugging, armed robbery, rape, and homicide. [11] reported that conduct disorder is three to four times more common in boys than their female counterparts, whereas adolescents diagnosed with this disorder frequently instigate fights with peers, teachers, and other authority figures. These children feel as though rules or laws are not applicable to them.

While boys who are diagnosed with this disorder display more outward forms of aggression, females who are diagnosed with conduct disorder usually show a different pattern of behavior of conduct disorder, called relational aggression (RA). [6] defined the term relational aggression

as emotional violence and bullying behaviors focused primarily on damaging or manipulating the individual's relationships within a peer group. These same two authors found that boys are more likely to use physical victimization (e.g., fighting) whereas girls are more likely to use relational victimization (e.g., spreading rumors, teasing, cyberbullying). [13] highlighted the different types of RA:

1. Relational aggression – behavior intended to harm someone's relationships with others
2. Covert aggression – indirect or hidden acts of aggress
3. Peer aggression – physical, verbal, and relational aggression
4. Physical/Overt aggression – direct, blatant acts of aggression, can be physical or verbal
5. Verbal aggression – threats, putdowns, and name calling
6. Reactive relational aggression – defensive response to provocation with intent to retaliate
7. Proactive relational aggression – proactive means for achieving a goal. (p. 3)

For young girls whom experience relational aggression could experience the following long-term effects such as: poor self-esteem, poor relational skills, anger, depression, teen pregnancy, self-injury, and eating disorders just to name a few [13].

Attention Deficit/Hyperactivity Disorder (ADD/ADHD)

This disorder seems to be one that is frequently given to children nowadays that have difficulty sitting still, inability to pay attention, or may display some type of outward aggressive behavior as a quick fix or easy label. [3] defined the following guidelines for someone to meet diagnostic criteria the behavior must be present continuously for at least 6 months, disruptive (e.g., both at home, school, other environments), inappropriate by cultural and developmental standards, and all of these symptoms have an onset before the child is 7 years of age. ADHD is further described as a child having poor attention, easily distracted, inability to sit still, lacks impulse control, tends to talk when inappropriate, and unable to wait his or her turn [4]. On the other hand to be diagnosed as the hyperactive-impulsive type, according to [3] the child must constantly fidget and move around, talks excessively, interrupts others, and has a hard time waiting to be called on as just a few of the many signs of ADHD.

Elimination Disorders

Enuresis and Encopresis

There are two major types of elimination disorders as defined by [3] the first is enuresis (e.g., intentional bed wetting or wetting on oneself) with a diagnostic criterion of:

1. Urinating in the bed on the child's clothing at least twice a week for at least 3 months
2. The accidents cause significant distress
3. The child is 5 years of age or older
4. The wetting accidents are not otherwise explained by another medical condition.

The urinating in one's bed, clothing, or floor occurs at an age when the child should have already mastered the task of potty training. The second encopresis (e.g., defecating in one's clothing, bed, floor) is defined according to the DSM-IV-TR as:

1. Repeated bowel movements in inappropriate places
2. Inappropriate bowel movements occur once a month for at least 3 months
3. The child has an age of four
4. The problem is not otherwise explained by another medical condition.

In the case of a child being diagnosed with enuresis or encopresis it is not uncommon for the parent or sibling(s) to have experienced a similar problem as a child. There is no one cause as a reasoning why children develop these disorders, but it could be concluded that these children have anxiety, emotional conflicts, improper toilet training, a weak bladder, social problems, shame, stress, or embarrassment [4]. Elimination disorders should be addressed with the child's pediatrician to confirm that the disorder is not accounted for by a medical condition before pursuing other therapies. It is also important to include family therapy as discussed earlier family conflicts could be the root of the problem.

Pervasive Developmental Disorders

Autism/Autistic Disorder

Autism or Autistic Disorder is a diagnosis focused on social interaction, communication delays, and repetitive behaviors where a child must have symptoms from each of these three areas that are present before the child turns 3 years of age [3]. When looking at the social interaction piece, children with autism prefer to play by themselves, avoid interactions with others, and seem disinterested in forms of affection such as hugs and kisses. Next, communication delays are displayed when the child has significant language issues such as failure to speak or develop language, or the refusal to use or acknowledge nonverbal forms of communication with peers, teachers, parents, or others. Lastly, children diagnosed with autism often

repeat certain behaviors or mannerisms like flapping hands, twisting arms, rocking, spinning, or making off grimaces. These children appear to be in their own little world as though they have detached themselves from reality, and have extreme difficulty relating to others. It is also commonplace for children, mostly boys, diagnosed with this disorder to induce self-inflicted injury through head-banging, biting, or pulling one's hair. When it comes to play, children with autism have limited play or what we as play therapists would describe as non-imaginative play, which is the inability to incorporate fantasy, real-life scenarios, sequential play (e.g., play with a beginning, middle, and end that flows together), and the ability to play in a variety of ways. Play is typically done by oneself due to the inability to include others utilizing toys that include buttons or lids. The child will then in a sense get lost in their own little world by repeatedly playing with the buttons or the lids by taking the lid off and then replacing it. Children diagnosed with autism have difficulty dealing with change and best adapt to their environments by following daily routines and schedules. If you must create change around these children it is best to give them warnings in different time increments such as 20 min warning, 15 min warning, 10 min warning, and 5 min warning to slowly prepare the child for a change in his or her routine.

Asperger's Disorder/Asperger's Syndrome

Asperger's disorder is quite similar to autism, but with some key diagnostic criteria points that exist to differentiate between the two disorders. [3] defined Asperger's disorder as one with a child having difficulty with peer social interactions, but still remain interested in peers, they do not usually have language and speech delays, are able to develop patterns of behavior such as rituals, and the children do not usually experience cognitive difficulties. It is also quite common for some children with Asperger's disorder to be given the label of gifted intellectually. Children with Asperger's disorders enjoy talking and including others in their conversations, but the child with Asperger's typically takes over the conversation with topics only interesting to them. When interacting with other children it is also at times difficult for children with Asperger's to pick up on nonverbal cues causing a social impairment. These children want to fit in with their peers, but find it extremely difficult to interact with others due to the poor social functioning. As with autism, this disorder causes children to become easily angered or frustrated that could potentially induce self harming behaviors.

Rett's Disorder

Rett's Disorder is often confused with Autistic Disorder due to the appearance of multiple deficits following a period of normal growth and functioning after birth. The Autism Program at Yale School of [8] found this condition occurs primarily in girls at the rate of 3.8 per 10,000 with mutations of the gene MECP2 being indicated as causing the disorder. The typical onset for Rett's is around the first or second year of life, but before the age of four. The disorder is chronic after onset of the symptoms and is generally progressive as one ages. [3] outlined the following criterion for one to be diagnosed: deceleration of head growth, loss of hand skills such as hand-wringing or hand-washing, lack of social engagement, poor gait, and a severe impairment of both receptive and expressive language development.

Childhood Disintegrative Disorder

Childhood Disintegrative Disorder also known as CDD is a rather rare disorder that tends to affect more boys than girls. Symptomatology of this disorder becomes apparent after at least 2 years of normal development including social skills both verbal and nonverbal, ability to form social relationships, and play. As the disorder advances the child will experience a loss of interest in the environment, inability to engage in self-care such as toilet training, and language abilities are lost, which may present as autism. According to [3] a child must experience a loss of at least two previously learned skills such as (a) expressive language, (b) social skills, (c) control of bowels, (d) play, and (e) motor skills. In addition, by the standards of [3] the child must also experience abnormalities in two of the following areas: (a) impairment of social skills and ability to form relationships, (b) impairment in communication, and (c) repeated patterns of behaviors.

Mental Retardation

Down Syndrome

The general definition of Mental Retardation (e.g., MR) is someone with below average intelligence as measured by a standardized intelligence test to calculate an intelligence quotient, better known as IQ. The benchmark for MR is an IQ below 70. There are four subtypes of MR: Mild mental retardation (e.g., IQ ranging from 50–70), Moderate mental retardation (e.g., IQ ranging from 35–55), Severe mental retardation (e.g., IQ ranging from 20–40), and Profound mental retardation (e.g., IQ ranging from 20 to 25 or below). The symptoms of mental retardation have a typical onset before the age of 18. For one to be

diagnosed with MR they must experience concurrent impairment in at least two of the following areas: personal self-care/hygiene, communication/social skills, independent community living, and other areas of life functioning.

Down syndrome is one of the most recognized forms of Mental Retardation. This syndrome is a genetic mutation caused by an extra chromosome on the 21st pair. Everyone whom is diagnosed with Down syndrome has mental retardation in the Mild mental retardation (e.g., IQ ranging from 50–69) to the Moderate mental retardation range (e.g., IQ ranging from 35–55). This syndrome has distinctive facial characteristics associated with children with Down syndrome such as slanted eyes (e.g., oblique eye fissures), folds in the skin around the corner of the eyes (e.g., epicanthic eye fold), a flat nose, protruding tongues, usually short and stocky body type, a short neck, and small ears. It is not uncommon for children with Down syndrome to also have other medical complications such as heart defects and visual and auditory impairments to name a few.

Phenylketonuria (e.g., PKU)

Phenylketonuria also known as PKU is a genetic disorder where the body cannot break down the essential amino acid phenylalanine and as an excess amount of phenylalanine develops leads to mental and physical abnormalities. If this disorder is left untreated it can lead to mental retardation. The known cause is by having two parents that both have the recessive gene for the disorder and if only one parent has the recessive gene they are known as a carrier of PKU.

Fragile X Syndrome (e.g., FXS)

Fragile X syndrome is the most common inherited cause of mental retardation. The syndrome occurs when a DNA series makes too many copies of itself. The mutated gene is unable to produce the necessary protein that is needed in the body's cells especially the brain cells for normal functioning. Fragile X is also associated with some distinctive facial features such as long ears and a long face. It is not uncommon for children with Fragile X to experience behavioral disorders for example, temper tantrums, hyperactivity, irritability, and engaging in self-injurious behaviors.

Fetal Alcohol Syndrome (e.g., FAS)

Fetal alcohol syndrome (e.g., FAS) is the leading known preventable cause of mental retardation for children. When a mother drinks alcohol during pregnancy the alcohol can affect both physical and brain development of the fetus leading to mental retardation and an assortment of birth defects. The University of [10] highlighted some key facial features that make it easy to identify a child with FAS such as: (a) flat forehead (e.g., microcephaly), (b) small eye slits (e.g., short palpebral fissures), (c) flat midface, (d) thin upper lip, (e) pointy chin (e.g., micrognathia), (f) short nose, (g) pointed ears, (h) low nasal bridge, and (i) epicanthal folds. Thus, to avoid this disorder a mother must reframe from alcohol intake during pregnancy.

Cultural-Familial Retardation

In other cases of mental retardation the cause is not directly known. The Psychology Encyclopedia (2010) described another form of mental retardation called, familial retardation, "also called sociocultural or cultural-familial retardation, mild mental retardation attributed to environmental causes generally involving some degree of psychosocial disadvantage" (p. 1). The early signs of cultural-familial retardation typically are not visible until a child begins school and starts having troubles academically in the classroom. According to the Psychology Encyclopedia (2010) a child with cultural-familial retardation usually has an IQ in the range of 55–69 and reported that environmental causes like the mother's prenatal care, nutrition, family size, the spacing of births within a family, illness, and other teratogens from the environment like lead may lead to the development of this form of mental retardation.

Learning Disorders

Mathematics Disorder

Mathematics disorder is another learning disorder often referred to as dyscalculia. The key features of this disorder surround the decreased ability to comprehend mathematical concepts, recognize numerical symbols, and copying figures or numbers correctly. As stated earlier, [3] notes that a child's mathematical ability is significantly below what is expected for the child's age as measured by standardized tests, the difficulty interferes with academic achievement and daily functioning, and there might be an additional sensory deficit present that can further impair difficulties with mathematical abilities.

Reading Disorder

The most common reported learning disorder is called reading disorder or commonly known as dyslexia. Reading disorder affects mostly males at 60–80% of children who are diagnosed with this disorder. This disorder results in a child having significantly lowered reading ability and scores than what is expected for the child according to

the child's age, IQ, and grade level. [3] states that the child's reading achievement needs to be well below what is age appropriate as defined by standardized tests, the reading difficulty interferes with academic achievement, and a potential sensory deficit may be present to intensive the reading difficulties for the child.

Disorder of Written Expression

Disorder of written expression may be better recognized as dysgraphia, is beyond sloppy handwriting, but more related to difficulty composing sentences, frequent grammatical and spelling errors, as well as inability to organize paragraphs that flow logically from one topic to the next. This disorder is frequently found in conjunction with reading disorder or dyslexia.

Feeding and Eating Disorders of Infancy or Early Childhood

Pica

Pica is often seen with Mental Retardation and Pervasive Developmental Disorders, although some studies have found vitamin or mineral deficiencies (e.g., zinc) may account for the development of this disorder [3]. Pica occurs when children eat nonnutritive substances such as paint, paper, hair, leaves, etc. consistently for at least one month. The aftermath of Pica can result in serious medical risks and complications. The disorder is seen across racial and socioeconomic classes, both females and females, and all age groups. [3] reports that a child must exhibit the following: (a) constantly eating nonnutritive items for at least one month, (b) the behaviors exhibited is not appropriate for age and developmental levels, and (c) the disordered eating behavior occurs during the course of another existing mental health problem.

Rumination Disorder

Rumination disorder is a rare pattern of disordered eating when a child repeatedly regurgitates and chews recently eaten food. This type of episodic behavior can occur multiple times a day and may resemble self-induced vomiting, which causes children to be misdiagnosed with Bulimia Nervosas or with GERD (e.g., Gastroesophageal Reflux Disease).

Feeding Disorder of Infancy or Early Childhood

Feeding disorder of Infancy or Early Childhood results when a child fails to eat adequate portions or at all in some instances fails to eat at all, which usually causes one to significantly lose weight or an inability to gain weight. The disorder is not explained by another general medication condition or another mental health problem. It is not uncommon for the disorder to have an onset by the age of one, but may have a later onset at the age of 6 years of age. Children and infants may become irritable during feeding times and difficulties with the mother and child bond may also exacerbate the symptoms.

Motor Skills Disorder

Developmental Coordination Disorder

Developmental Coordination Disorder results in the impairment of motor coordination that is not explained by another general medical condition. The diagnosis is typically made after the motor coordination impacts one's academic performance and ability to engage in everyday activities. This disorder is usually evident when a child attempts to hold a knife or fork, or attempts to run or play a game using equipment.

Communication Disorders

Expressive Language Disorder

The key aspect of Expressive language disorder is the impairment in both nonverbal and receptive language development. These difficulties interfere with one's academics, employability, and impact social areas of an individual's life. The usual signs of this disorder are limited speech, small range of vocabulary, and difficulty with grammar that is apparent around the time a child starts school if not before. It is important to consider cultural implications before diagnosing a child with this disorder due to children growing up in bilingual homes and the context within language is also spoken within the home. The diagnostic criteria largely comes from scores from standardized measures of expressive language development constituting in scores far below what is expected according to age and development. [3] defines this disorder when a child has difficulties with language that interfere in a variety of areas for the child such as educational and social functioning. It is also important to rule out the diagnosis of Mental retardation as language difficulties are commonly associated with MR.

Mixed Receptive-Expressive Language Disorder

The marked feature of Mixed Receptive-Expressive is functional impairment with both receptive and expressive language that may be acquired or developed. Children with this disorder have difficulty recalling and understanding words in conjunction with difficulty expressing ideas. The disorder is detected in children through the use of standardized tests assessing both receptive and expressive language

development. The difficulties cause significant problems for a child academically and with social interaction.

Phonological Disorder

The most common communication disorder with children is Phonological disorder, previously known as Developmental Articulation Disorder. Children diagnosed with this disorder fail to use appropriate speech sounds that are relevant according to the child's age and dialect. The impairment usually follows errors in sound production, use of the speech sounds, and the ability to organize sounds. As with other communication disorders it is also important to rule out Mental Retardation as a factor in causing this disorder. The basics of this disorder include difficulty organizing all the sounds necessary for clear speech, ability to understand and read, as well as the skills necessary for accurate spelling.

Stuttering

The disorder of Stuttering is noted by the frequent repetitions or prolongations of sounds and syllables. A child may not be aware of the problem initially but after a child has been diagnosed increased awareness and anxiety surrounding the issue may develop later on. This disorder is more common in boys than girls at a rate of 3 to 1 and is found more often in prepubertal children (e.g., before the age of ten) than in adolescents [3]. According to [3] a child must experience at least one of the following: (a) repetition of sounds, (b) sound prolongations, (c) interjections, (d) pauses within words, (e) silent blocking, (f) heightened physical tension when pronouncing words, (g) monosyllabic whole-word repetitions, (h) the Stuttering interferes with all areas of life such as educational and social situations, and (i) if a child is already diagnosed with speech–motor difficulties then the speech problems are more extreme.

Tic Disorders

Tourette's Disorder

[9] described Tourette's disorder when a person has multiple motor tics such as facial grimaces or eye blinking or vocal tics such as throat clearing, shouting, or barking. Tourette's Disorder may surface around the early years around the age of two or at the latest by the age of 18. [3] states that for one to be diagnosed both motor and vocal tics must be present although not necessary at the same time and that these symptoms must occur several times a day for one year. It must also be ruled out that the motor and vocal tics are not caused by an underlying general medical condition or the affect of substance use.

Chronic Motor or Vocal Tic Disorder

Chronic Motor or Vocal Tic disorder is very similar to Tourette's disorder except a child or adolescent tends to have either motor movement tics or vocal tics but do not have both of these.

Transient Tic Disorder

Transient Tic disorder is very similar to both Tourette's disorder and Chronic Motor or Vocal Tic disorder in diagnostic criteria except the motor or vocal tics usually last 4 weeks, but not longer than one year (e.g., 12 consecutive months).

Other Disorders of Infancy, Childhood, or Adolescence

Separation Anxiety Disorder

Separation Anxiety Disorder (e.g., SAD) affects both children and adolescents whom have an excessive worry or fear of being separated from their caregiver (e.g., parent, relative, nanny, or other caregiver) or home. The onset of symptoms usually follows a major life change (e.g., starting a new school or a recent move) or a traumatic loss (e.g., death of a loved one). This anxiety is not common for what is appropriate for the individual's age and developmental status. For this disorder to be diagnosed the child must be under the age of 18 and the symptoms must last for a consecutive 4 weeks. When these children are out of touch with caregivers they constantly need to know where they are located by keeping in touch through phone calls or checking in- person with the caregiver. Children may also express fears about being alone, animals, monsters, plane crashes, car accidents, or the fear that someone may break into the child's home. [7] outlined some signs to be aware of in the home, at school, and at the doctor's office:

1. At home:
   (a) Extreme worry about separating from caregiver or the anticipation of separation
   (b) Constant fears that something tragic may happen to the caregiver
   (c) The child may refuse to go to school
   (d) The child may not want to engage in extracurricular activities or spend time with peers due to separation fears
   (e) The child may insist on sleeping in the bed with the caregiver or may experience nightmares about being separated
   (f) The child may begin experiencing psychosomatic symptoms as a result of the excessive anxiety and

worry around being separated from the caregiver such as stomach aches, headaches, and other physical ailments.

2. At school:
   (a) The child may have a difficult time transitioned from the home to the school environment
   (b) The child may insist on staying home or engage in behaviors to avoid going to school
   (c) The child may have difficulty concentrating on tasks in the classroom
   (d) It is not uncommon for the child to have lowered self-esteem
   (e) Continued avoidance of after-school activities or engaging in other activities with peers.
3. At the doctor's office:
   (a) As a child ages the symptoms may change
   (b) Other conditions such as phobias and panic disorder should be ruled out
   (c) Depression is often seen in these children
   (d) The child will complain of various physical ailments
   (e) Children may lack insight into their disorder or avoid talking about the fears of separation
   (f) It will be beneficial for the families to be directed on how to deal with these worries.

These worries and excessive fears of being separated from the caregiver cause severe disturbance for the child socially, academically, and is various other areas of functioning.

Selective Mutism

Selective Mutism formerly known as Elective Mutism is when a child refuses or fails to speak in social situations where speaking is expected and normal. This disorder typically has an onset before the age of five for children, but is not typically noticeable until the child begins school. [3] reported that for a child to be diagnosed with Selective Mutism the following must occur: (a) failure to speak, (b) the mental disturbances cause impairment in functioning of one's academic and social functioning, (c) the failure to speak is not accounted for by the lack of ability to speak, and (d) the disturbance is not otherwise explained by another mental disorder. Selective Mutism is a rare disorder is has been found in "1% of individuals in mental health settings" (APA, [3], p. 126).

Reactive Attachment Disorder of Infancy or Childhood

Reactive Attachment Disorder of Infancy or Childhood begins around the age of five. There are two subtypes inhibited type (e.g., extremely withdrawn and emotionally detached) and disinhibited type (e.g., seeks attention from virtually anyone). It is not uncommon for a child diagnosed with Reactive Attachment Disorder of Infancy or Childhood to have experienced abuse or neglect. Children with this disorder have difficulty forming nurturing bonds with caregivers and others, which ultimately impacts brain growth and development. According to [3] a child must fail to respond appropriately to social interaction or fail to develop selective attachments as well as experience neglect from the caregiver(s) related to the child's emotional and physical needs.

Stereotypic Movement Disorder

In Stereotypic Movement Disorder a child repeatedly makes movements such as hand waving, body rocking, biting self, or head banging to name a few for at least 4 weeks. The disorder seems exacerbated by increased levels of stress. The behavior impairs one's ability to participate in normal activities and may cause medical complications with the self injurious behavior. These behaviors are not otherwise accounted for by another general medical condition and if Mental Retardation is present treatment will focus on the self injurious behaviors.

Relevance to Childhood Development

A child's development is based out of a variety of factors: family, environment, culture, and biology. Each one of these factors can impact not only a child's physical and cognitive development, but more importantly a child's psychological development. Psychological disorders or commonly known as mental disorders do not only affect adults, but many mental disorders actually begin in childhood. As a caregiver, teacher, parent, or clinician it is important to know and recognize the different symptomatology associated with specific disorders, so that the child or adolescent can receive the best care, whether that means therapy, medication, special education plan, or other interventions. It is important for the child to not only be physically healthy, but mentally healthy as well as they progress through the life span.

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Psychological Evaluation

►Psychological Assessment

Psychological Freedom

►Self-Determination

Psychological Maltreatment

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Synonyms

Child maltreatment; Emotional abuse; Psychological abuse; Verbal abuse

Definition

A persistent pattern of demeaning or humiliating behavior directed at child by a caregiver.

Description

A type of maltreatment in which a caregiver degrades, corrupts, berates, belittles, rejects, threatens, ignores, exploits, assaults, spurns and/or terrorizes a child in a repeated pattern [1, 2]. Psychological maltreatment may also consist of denial of psychological treatment, extreme verbal punishment, unreasonable expectations, and/or lack of responsiveness. This pattern of behavior from caregivers may adversely affect the child cognitively, emotionally, and socially. A caregiver may make a child feel unloved, flawed, or worthless through name calling and/or scapegoating or may be unconcerned with a child's troubles [1, 5]. The presence of psychological maltreatment may adversely affect later development of the child including symptoms of aggression, depression, emotional regulation, eating disorders, substance abuse, and learning disabilities [3, 5].

A child who is being psychologically maltreated may present symptoms of anxiety, depression, conduct disorder, and/or personality problems. Children who are psychologically maltreated may also show signs of regression in development, passivity, low self-esteem, social impairment, insecure attachment to caregiver, and/or suicidal behavior [2, 3].

Problems with emotion regulation may lead to alterations in the limbic system of the brain, disrupting the child's ability to self-regulate and interact with peers [6]. Without proper intervention, children who are maltreated may be affected well into adulthood. As adolescents and adults, they may abuse substances, show symptoms of psychiatric disorders, and engage in criminal behavior [4].

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Psychological Testing

►Psychological Assessment

Psychology

Definition

Psychology is the scientific investigation of the way people think, communicate, the study of the mind and mental states. The concept of the study of the consciousness, temperament and behavior is also imperative. The two Greek words psyche and logos, psyche was translated as the soul or the breath of life, and the word logos was the knowledge or study and was originally defined as: the study of the mind.

Description

Psychology involves the scientific study of the conscious experience of mental processes and behavior. These concepts include perception, cognition, emotions, personality, interpersonal, intrapersonal relationship and consciousness. Psychology emphasis is on experimentation and research with animals and humans concentrating on observable and measurable behaviors, biological and neurological processes. It is important to understand how these functions inter play with social dynamics. Psychologists use various statistical assessments essential to scientific methods. The applications include issues that relate to problems in living, including treatment of mental health. There are various concentrations in the field of psychology these are: developmental, social, comparative, cognitive, bio-physiology, health, and organizational.

Relevance to Childhood Development

Clinical psychology is the branch that diagnosis children with psychological problems and treatment. They also can give assessments for cognition, achievement and intelligence (IQ) Psychologists with specialized training in evaluation of cognitive functioning is a Neuropsychologist. They use a battery of standardized assessments developed in diagnosing children with specific cognitive impairment. When the area of impairment is identified recommendations of specific mental exercises are then given to help the child to improvement. An example is Brain training software to help children with brain injury. Also Neuropsychologist have had major success with Bio-feedback for children with Attention Deficit Disorders and various other disorders.

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Psychology of Language

▶Psycholinguistics

Psychometric Study of Creativity

▶Creativity Assessment

Psychometrics

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Synonyms

Psychometry; Measurement theory; Test theory

Definition

An area of psychological science focusing on the development, use, and interpretation of theoretically sound, consistent, and valid assessment instruments.

Description

Psychological testing involves the systematic measurement of psychological or educational variables, such as personality, intelligence, or academic achievement. Two major assumptions underlying psychological testing are that individuals demonstrate relative stability of psychological traits across situations and over time, and that the extent to which individuals possess certain psychological traits varies significantly in the population at large. Understanding the extent to which an individual possesses or demonstrates certain psychological traits, and the typicality of those traits in the general population and/or others similar to the individual, can be useful in understanding and/or making predictions about that individual's functioning. Psychological testing attempts to quantify the differences in traits among individuals by systematically assigning scores to items measuring those traits, which in turn permits statistical examination of the relationships among test scores and other variables of interest.

The American Psychological Association's Report of the Task Force on Test User Qualifications [1] indicates that test users' psychometric knowledge must encompass both *classical test theory* (CTT) and *item response theory* (IRT).

Classical test theory is characterized by the assumption that the score received by an individual on a given test, sometimes referred to as the obtained or observed score, comprises both a "true score" that the individual could obtain on that test under ideal circumstances, and some degree of measurement error introduced into the testing process by the test user, the test taker, or the test itself. Since it is not possible to precisely identify and quantify all sources of error, it is also impossible to state the precise difference between the obtained score and the true score. In the CTT model, psychometric statistics are obtained by examining the performance of a sample group on the test as a whole, as well as at the item level. Test consistency is measured by examining score correlations across parallel forms of the test, or among items within the test. Items' levels of difficulty are determined based on the sample's overall performance on each item. In recent years, CTT has been criticized as too simplistic and sample-dependent, since the data obtained from CTT analyzes will vary based on the performance of the individuals in a given sample. Accordingly, the use of IRT, a psychometric approach that examines the links between test-takers' latent abilities and their test performance, has become increasingly prevalent. Through the use of mathematical probability models, IRT permits examination of the extent to which levels of ability or traits of interest (as measured by overall test performance) predict performance on individual test items.

Other necessary test user competencies, as identified by APA [1], include: familiarity with descriptive statistics; knowledge of statistical measures of variation (e.g., standard deviation) and relation (e.g., correlation); awareness of the characteristics of the normal curve; knowledge of types of scales and scores; and familiarity with how these concepts relate to assessing a test's *reliability*, or consistency of measurement, and *validity*, or the extent to which a test measures what it is supposed to measure (*content/construct* validity, or validity of measurement) and predicts performance on some external measure or criterion variable (*criterion* validity, or validity for decision-making).

When used in reference to individual assessment instruments or to types of tests, the phrases "psychometric soundness" and/or "psychometric adequacy" refer to whether the tests demonstrate sufficient levels of reliability and validity for ethical use with clients. The *Standards for Educational and Psychological Testing* [3], which establish standards for test construction, competency and knowledge of test users, and appropriate use of tests, do not "dictate minimal levels of test-criterion correlation, classification accuracy, or reliability for any given purpose" (p.112). As a general rule, however, any tests used in high-stakes decision-making processes should possess high levels of reliability and validity in order to increase the likelihood that such decisions are made appropriately.

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Psychometry

▶ Psychometrics

Psychomotor Seizures

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Synonyms

Complex partial seizure; Temporal lobe seizure

Definition

A psychomotor seizure is a form of epilepsy that is typically limited to the temporal lobe of the brain and results in impairment of responsiveness and awareness to ones surroundings. Patients may act out in a variety of ways while experiencing the seizure but have not recall of it.

Description

Psychomotor seizure is an older term used to describe a complex partial seizure which is seen in its most common forms as either psychomotor or temporal lobe epilepsy. Psychomotor seizures are more complex than simple partial seizures because an alteration of awareness typically accompanies the experience of a seizure. In fact,

about half of all people who experience a psychomotor seizure also experience a concomitant aura [3].

In many circumstances the aura that a person experiences is directly related to the origination of the seizure. In other words, if a person has a visual aura or manifestation (e.g., perceiving objects as getting smaller or larger) there is a high likelihood that the seizure has an origination point, or the abnormal firings of neurons is occurring, in the occipital lobe. Similarly those with frontal lobe seizures might possibly experience motor problems.

Alterations of consciousness can take several forms with a psychomotor seizure. The experience of a seizure may induce a sense of déjà vu ("already seen") or jamais vu ("never seen") with regards to familiar places or situations. Additionally, it is not uncommon for a person experiencing a psychomotor seizure to have a sense of rushed thoughts, nausea, illusions, terror, euphoria, panic, or ecstasy.

Relevance to Childhood Development

Children with seizure disorders are at a high risk for experiencing problems with learning. This is due largely to the high number of missed school days each year that a child with psychomotor seizures will experience. Bailet and Turk [1] found that while some children with seizure disorders may have lower than average IQ's typically it is a difficulty with learning and a lack of educational opportunities that have a detrimental impact of child performance within schools.

In addition to school associated problems, children with seizures in general have been found to have disproportionately high rates of psychological problems. Researchers have found rates between 25% and 60% of children with seizure disorders also display identifiable behavioral disorders [2, 4]. Still other research has shown a link between aggression and depression in children with a seizure disorder [5].

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Psychopathology

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Synonyms

Mental disorders; Mental illness; Psychological disorders

Definition

Psychopathology is an umbrella term that describes behavior that is significantly dysfunctional or different than "normal."

Description

Psychopathology is a term that encapsulates deviant, dysfunctional, or otherwise abnormal behavior and thought processes. Broken down, "pathology" is a term used for deviance while "psycho" is used to indicate mental or mind-states. Together, "psychopathology" is used to describe deviance in mental status. Schizophrenia, Bipolar Disorder, and Narcissism are all types of psychopathology. The most widely used system in the United States for categorizing, diagnosing, and describing psychopathology is the Diagnostic and Statistical Manual of Mental Disorders, published by the American Psychiatric Association.

Psychopathology can be present in any type of person, regardless of sex, age, and ethnicity. However, different countries may recognize different forms of psychopathology. Further, behavior that may be considered as pathological is based on how different that behavior is when compared to the rest of the population.

Psychopathology can be assessed by a variety of instruments, direct observation, or through self-report. It is important to note that while behaviors may be pathological, people are not. In other words, the person is not pathological, but rather, the person is demonstrating a type of thought or behavior that is pathological.

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Psychopathy

▶Sociopathy

Psychopharmaceutical Medication

►Psychotropic Medication

Psychophysiological

►Psychosomatic

Psychosexual Stages, of Freud

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Synonyms

Oral, anal, phallic, and genital stages; Psychosexuality

Definition

Psychosexual stages of development, observed by Sigmund Freud, the father of psychoanalysis, represent maturational processes by which a child's innate biological drives interact with different erogenous zones to influence personality. Different conflicts emerge in relation to the psychosexual stages of childhood, and these conflicts are reworked during adolescent development in response to hormonal changes and new psychosocial stresses in ways that are unique and characteristic of the individual.

Description

An unusually integrative and creative thinker, Freud's theory of psychosexual development can be best understood in relation to his other ideas about childhood sexuality [11], instincts [12], and the oedipal conflict, superego, and structural theory [14]. Other sources provide an overview of components of Freud's theory [3, 20, 25, 26]. The purpose of this entry is to orient the reader to psychosexuality and some of its key related concepts.

Drives

A neurologist by training, Freud [11] envisioned a biologically based model of psychological maturation in which a primary sexual instinct or drive, and an innate need for gratification and pleasure, interfaced with the highly sensitized nerve endings of the oral, anal, and genital erogenous zones that were in ascension at different points in the child's early development. Freud stated: "The concept of instinct is thus one of those lying on the frontier between the mental and the physical" [11, p. 168]. Drives have an impetus, which reflects a push forward; a source, which is the erogenous zone from which the drive emanates; an aim, as reflected in the desire to gratify the drive; and an object, represented by the person gratifies the drive, though something other than a person could also gratify a drive. Although Freud later added aggression [13] as a second drive, it was the sexual instinct that was primary in his development of psychosexuality as a central concept in personality formation.

Psychosexuality and Personality

The way in which the experience of drive build-up and discharge in psychosexual zones influences the child's personality development [11, 20] is summarized as follows. The erogenous zone – oral, anal – or genital phallic – that is dominant at a particular point in time, and the degree to which these drives are gratified or frustrated by the primary caregiver, help to organize the child's internal and external experience. Rather than think of psychosexual stages as time-limited phenomena in which one stage ends and another begins, it is clinically useful to view psychosexual stages as interactive periods of conflict, adaptation, and development in which there is an unfolding and dynamic tension between stages.

Oral Stage

The oral stage is assumed generally to be dominant from birth through 18 months and centers around sensations associated with feeding, but oral tensions persist beyond this general time frame and continue to find expression in later childhood, adolescent, and adult personality. For example, conflicts associated with alcohol, eating, and physical contact might have their derivatives in the oral stage.

Anal Stage

The anal stage covers the toilet training period up until about age 3 and is focused on sensations associated with retention and expulsion, but adolescents and adults can remain preoccupied with and conflicted about body functions and control.

Phallic-Genital Stage and Oedipal Conflict

The phallic-genital stage, occurring up until about age 5 at which point the oedipal conflict (see below) is in ascension, organizes fantasies of "...penetrating or being penetrated..." [20, p. 331], but phallic-genital conflicts

continue to persist beyond this time frame in the form of locker-room anxiety, or exhibitionism, or conflicted competition.

Illustration

To illustrate the interactive nature of psychosexual stages, assume a child who experiences a relatively uncomplicated oral stage, but has significant frustrations during the anal stage in conjunction with toilet-training. During toilet training there are conflicts related to control and autonomy versus dependency. The child is willful, resistant to parental controls, and angry at being told what to do and when to do it. This same child then enters the phallic-genital stage with an angry disposition characterized by a willful readiness toward controlling and stubborn behaviors, rather than being able to easily comply, cooperate, and enjoy an activity. The former are more conflicted residuals of anal stage conflicts, whereas the latter suggest a less conflicted anal stage. In the classroom, this same child might be messy, controlling, and excessively challenging. This disposition might then carry over to the phallic-genital stage in the form of a "win-at-all-costs" attitude in which cooperative gamesmanship is minimized, and where defeat is experienced as a humiliating loss with acute self-loathing.

Psychosexuality, Structural Theory and Defenses

Freud's ideas about aggression [13] and his structural theory [3, 14] provide important insights into the way in which the constructs of id, ego, oedipal conflict, and superego development interface with psychosexuality and sexual identity [26]. Structural theory presents a tripartite (id-ego-superego) model of the mind in conflict. The unconscious id's primary motivation for tension-reduction operates on a pleasure principle. In Freud's structural theory, the id gradually comes under the control of the ego, which in Freud's theory, emerged toward the end of the oral stage and is concerned with the demands of reality. The ego acts as the part of the mind that represents the id to reality and partners with it, by disguising and channeling the id's sexual and aggressive impulses through various defense mechanisms. The ego's defense mechanisms, outlined by Freud [10], are also unconscious and redirect id impulses toward socially acceptable aims. In terms of defense mechanisms and their presumed psychosexual correlates, one might consider the child's hallucinating of the breast as a defense against periods of frustration during the oral stage; the use reaction-formation against anger and disgust (e.g., over compliance as a defense against anger) as a primary defense mechanism during the anal stage; and repression, undoing, identification, intellectualization as primary defenses during the genital stage. Brenner [4] argues that any psychological activity reflects a compromise between id, ego, and superego, and includes both adaptive and defensive aspects.

Psychosexuality, Ego Psychology, Psychosocial Stages, and Object Relations

Although Freud focused primarily on psychosexual conflict, other prominent psychoanalytic theorists elaborated upon psychosexual theory and emphasized the ego's adaptive capacities, [15], psychosocial conflicts [8], the role of developmentally appropriate separations from the primary caretaker's in the maturation of ego's autonomous functions [17]. An ego-psychological perspective holds that the ego is present from birth with its own autonomous abilities, such as perception, motility, language, anticipation, attention, memory, emotion, that are directed toward adaptation. This idea of the ego as adaptive is different from the idea of an ego that served mainly to direct the id's desires. Erikson's psychosocial theory emphasizes different stages of psychosocial conflict in conjunction with psychosexual stages and extends these conflicts throughout the lifespan. Mahler, Pine, and Bergman's separation-individuation model focuses on the way in which the child's ability to separate from the caretaker supports the development of different skills and independence, and contributes to the internalization of different perceptions of self in relation to other people.

These developmental challenges interact with psychosexuality; for example, the oral stage involves tension and sensation associated with the mouth, including feeding, and biting, but orality also involves being held, comforted, and nurtured, and has implications for the development of a sense of trust versus mistrust [8], and the child's emergent ability to use different skills and feel psychologically safe even when separated from the primary caretaker [17]. Similarly, the anal stage is associated with feelings of internal bodily pressure and control, but also has psychosocial implications for a child's sense of autonomy versus shame and self-doubt as well an object-relational component of predominately self control versus feeling controlled by a demanding caretaker.

Recall that the instinct is gratified by an outside source, and it is this source, typically a caretaker, to whom the child becomes attached interpersonally. Indeed, at each psychosexual stage, the prevailing attitude of parents, which might be timely, frustrating, or over stimulating, influences the type of conflict, but this does not necessarily translate into discrete character oral, anal, or phallic-genital types. Instead, a child who is needy, or greedy, or bossy, or overly

competitive has conflicts that have been influenced to different degrees by the predominance of conflict associated with the oral, anal, and phallic-genital stages. Frustration or excessive stimulation can fixate child character development and complicate maturation through the subsequent psychosexual stage(s). The clinician has to assess the degree to which each stage contributes to conflict, understand its adaptive and maladaptive nature, and appreciate the defenses that are constructed to protect the child from experiencing excessive anxiety and their impact on the parent-child relationship.

Oedipal Conflict and Superego

It is during the genital stage and as outcome to the oedipal conflict that the superego emerges. The superego [14] is the part of the mind that internalizes parental standards, imposes consequences, and, as Schafer [22] notes, also embodies internal ideals that serve as a source of pride and self-love. The oedipal conflict is central to Freud's psychosexual theory because of its intimate connection with psychosexuality and differential clinical implications for boys and girls. In Freud's theory, boys gradually separate from their mother, the initial object of identification and gratification, as genital sensations are differentiated from other feelings. Freud assumed an innate bisexuality, but as a biological evolutionist, viewed heterosexuality as the more desirable outcome of a positive oedipal resolution.

In the oedipal conflict, the boy competes with his father for his mother's affection, but must ultimately renounce these rivalrous feelings because of a fear of castration. Castration anxieties are present because the of the genital excitement associated with the boy's wish to possess his mother in conjunction with the guilt feelings that occur in connection with this wish – he experiences rivalry towards his father, who is bigger and evokes a danger (i.e., castration anxiety) in the boy that becomes centered unconsciously in the genital region. The boy then defensively identifies with his father, ". . .or a suitable substitute and idealizing him, thereby establishing the basic strictures of the superego; prohibitions of both killing and incest" [26, p. 339]. Thus, the drive intensity that colors the boy's identification with his father's values, or the values of a father-substitute, and his own superego, reflect, on the one hand, his aggressive and incestuous desires and, on the other hand, a fantasy of his father's retaliatory power. Likewise, for the oedipal girl, similar to the boy, there is also love for the mother, but disappointment in her lack of a phallus. She feels hostility and turns toward the father as a love object. Rivalry with her mother is renounced and positive identification is effected, under the throes of oedipal pressure. The boy's superego was presumed harsher than the girl's superego because it carries with it the threat of castration, though the superego of both boy and girl emerge under the force of repression of sexual and aggression drive energy directed toward the mother (girl) and father (boy).

Relevance to Childhood Development

Primary drive dispositions that emerge from a child's navigation of psychosexual stage conflicts do not operate in isolation; instead, they build upon each other and shape and the emergent personality in ways that interact with social and educational pressures. Early contributions of psychoanalysis to education discussed the therapeutic role of the school in helping to contain and sublimate drives into positive learning experiences [1, 19] and the way in which psychosexual theory informs learning styles [24]. Psychoanalytic theory also offers insight into school problems in such areas as boredom, impatience, obsessionality, and narcissistic vulnerability [16] as well as a range of learning problems [21]. With respect to intervention, there is an extensive literature on child psychodynamic psychotherapy [5] and psychoanalysis (e.g., [7]) that integrates insights from Freud's psychosexual model with a psychoanalytic treatment paradigm.

Criticisms

Freud's ideas have endured historically, but not without criticisms that touch upon core elements of his psychosexual theory. For example, Blum [2] discussed modifications in Freud's theory of female development. Fast [9] criticized Freud's conception of gender development. Chodorow [6] discussed the narrow nature of potential positive outcomes in Freud's oedipal conflict, and describes both heterosexuality and homosexuality as well as other sexual outcomes as reflecting compromise formations. Boesky [3, pp. 500–504] summarized conceptual challenges to structural theory. Seligman [23] discussed the role of new paradigms of infant observation and research that raise questions about the intrapsychic focus of Freud's psychosexual theory.

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Psychosexuality

►Psychosexual Stages, of Freud

Psychosis

Synonyms

Delusional disorder; Depersonalization disorder; Thought disorder

Definition

A loss of contact with reality, usually including false ideas about what is taking place or who one is (delusions) and seeing or hearing things that aren't there (hallucinations).

Description

Psychosis is a term used to describe an array of signs and symptoms suggesting a form of thinking that breaks from reality. Psychosis is not pathognomonic (a sign or symptom specific to a disease or condition) of psychiatric illness. It is a nonspecific cluster of signs and symptoms that may occur in a broad array of medical, neurologic and surgical disorders, or as a consequence of pharmacologic treatment, substance abuse or the withdrawal of drugs and alcohol.

The predominant characteristics of this syndrome are used in determining its classification of either organic or functional mental disorders. Psychosis can be due to organic disorders (like thyroid abnormalities), which cause structural defects or physiologic dysfunction of the brain. There is substantial evidence that there are chemical abnormalities in the brains of people with this problem.

Psychosis is characterized by an adherence to fixed, false beliefs outside the normal range of a person's subculture, or by a hallucinatory experience or by what is known as thought disorder: thinking that does not follow any rational line. False beliefs that cause a person to suffer, produce conflict with others or render a person unable to comfortably adapt to the demands of life, are delusions if they are not relinquished when the person is presented with adequate evidence to the contrary.

A wide variety of central nervous system disease, from both external poisons and internal physiologic illness, can produce symptoms of psychosis. Possible causes may include alcohol and certain drugs; brain tumors, dementia, including Alzheimer's disease; epilepsy; manic depression; schizophrenia; and stroke. Symptoms may include abnormal displays of emotion; confusion; depression and suicidal thoughts; disorganized though and speech; extreme excitement (mania); false beliefs (delusions); loss of touch with reality; mistaken perceptions (illusions); seeing, hearing feeling, or perceiving things that are not there (hallucinations); and unfounded

fear and suspicion. Treatment depends on the cause of the psychosis. Care in a hospital is often needed to ensure the patient's safety. Antipsychotic drugs, which reduce hallucinations and delusions and improve thinking and behavior are helpful, whether the cause is a medial or psychiatric disorder. Treatment can be with neuroleptic medication such as atypical neuroleptics like risperidone (brand name: Risperdal) or older neuroleptics like haloperidol (brand name: Haldol). In cases that do not respond to medication, electroshock therapy (ECT) is sometimes used.

Psychosocial Therapy

►Group Therapy

Psychosocial Treatments

►Parent Management Training

Psychosomatic

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Synonyms

Psychogenic; Psychophysiological; Psychobiological; Somatopsychic; Somatoform; Somatization.

Definition

Psychological and behavioral factors that influence the onset, exacerbation, course and outcome of physical conditions.

Description

A psychosomatic disorder is a physical condition in which emotional factors play an important part in the causation or maintenance of symptoms. The somatic complaints cause significant distress and interfere with daily functioning [1]. The pain and distress associated with somatoform disorders is not under the individual's voluntary control, and responses take place at a subconscious level. Disabling physical symptoms can arise in the presence or absence of an identifiable etiology and in the presence or absence of other medical or psychiatric disorder [2]. In some cases, however, the functional impairment clearly symbolizes the precipitating stressor.

Somatoform Disorders is the term used in the Diagnostic and Statistical Manual of Mental Disorders [3] to describe a group of disorders characterized by the production of physical symptoms that cannot be fully explained by a neurological or generalized medical or organic condition. Six different subtypes of disorders are subsumed under the Somatoform Disorders class; these are Conversion Disorder; Somatization Disorder; Body Dysmorphic Disorder; Hypochondriasis; Pain Disorder, and Undifferentiated Somatoform Disorder. Somatoform disorders must be differentiated from other psychiatric conditions, including psychosis, malingering, anxiety disorder, Munchausen syndrome by proxy, and undiagnosed organic disease.

There is much evidence to suggest that recurrent, medically unexplained physical symptoms are common in the pediatric age group, and are often associated with other psychiatric symptoms [4, 5]. Recurrent unexplained physical symptoms in children and adolescents commonly fall into four symptom clusters: cardiovascular, gastrointestinal, pain and weakness, and ►pseudoneurological. Somatization can also be poly-symptomatic with diverse somatic complaints in one patient [5].

Several ways have been proposed for understanding psychosomatic symptoms in children. Stress, loss, modeling, prior psychosomatic and physical illness, family communication style, non-supportive family environments, and neuropsychologic abnormalities have all been proposed as potential factors contributing to the development of somatoform disorder.

Etiology

Psychodynamic Theory

Psychodynamic theory postulates that the unconscious operation of psychological defense mechanisms is responsible for medically unexplained pain. According to this model, repressed affect related to psychic conflict is transformed from the emotional realm to the physical one and symptoms are viewed as the direct symbolic expression of an underlying psychological conflict. Primary gain is obtained by keeping the conflict from consciousness and minimizing negative affect. The symptom can afford secondary gain by providing an escape from unwanted consequences or responsibilities as well as

symbolically representing an unconscious form of self-punishment for unacceptable feelings [5].

Learning theory

Classical and operant conditioning approaches highlight the significance of contingent reinforcement in the development of styles of pain behavior and somatization. Physical symptoms have been called a form of body language for children who have difficulty expressing emotions verbally [5]. Social consequences that are valued by the child, specifically increased parental attention, sympathy from others, and avoidance of responsibilities have been found to play an important role in symptom maintenance, predominantly in children with low self-esteem and low academic competence and in children in families who are uncomfortable discussing negative feelings and experience excessive parental pressure to perform and achieve [6, 7]. Systematic reinforcement of pain-related behaviors early on in the course of the illness appears to increase the probability that these behaviors will endure even following elimination of the original painful stimulus. In opposition, pain-related behaviors have been shown to diminish as they are no longer subject to systematic reinforcement [5].

Family Systems

Somatic preoccupation, recurrent pain complaints, alcohol abuse, and psychiatric disorders are factors within families that have been found to be associated with pain disorders. Social learning theory suggests that the pain symptoms are a result of 'modeling' or 'observational learning' within the family. In such cases, the child subconsciously models the behavior of an ill family member. In other instances, focus on the child's illness draws attention away from parental distress, spouse conflict, or other problems within the family. This can subsequently reinforce the child's illness behavior [5]. Symptoms are often precipitated by environmental stressors. Children undergoing stressful situations have been found to report higher rates of somatic symptoms than children who are not experiencing stressful circumstances. High parental anxiety and prior physical or sexual abuse have also been proposed as factors that intensify the probability of somatization disorders.

Types of somatoform disorders diagnosed in children (DSM-IV):

1. Conversion disorder is the most common type of somatoform disorder diagnosed in children. The disorder involves unexplained symptoms or deficits affecting voluntary motor or sensory function that are suggestive of a neurological or other general medical condition, but clinical and investigative findings do not conform to any known anatomic or physiologic disorder. The symptoms result in functional impairment; the symptoms are not feigned (as opposed to malingering); and the onset or exacerbation of symptoms follows a readily identifiable psychosocial stressor.
2. Somatization disorder is characterized by a combination of pain, gastrointestinal, sexual and pseudoneurological symptoms. This chronic, recurrent disorder with multiple complaints is often presented in a dramatic and exaggerated way. The diagnosis of somatization disorder is relatively rare in children and adolescents, partially due to the requirements for several years of complaints and disability and for one sexual symptom [2].
3. Body dysmorphic disorder criteria require excessive concern or preoccupation with a real or imagined defect in body appearance, not better accounted for by an eating disorder or other psychiatric disorder. The disorder causes significant distress or impairment in social, occupational, or other important areas of functioning.
4. Hypochondriasis is the preoccupation with the fear of having, or the idea that one has, a serious disease based on the person's misinterpretation of bodily symptoms or bodily functions.
5. Pain disorder is diagnosed when a patient's predominant complaint is of unexplained physical pain in one or more body parts that causes distress or impairment and for which "psychological factors are judged to have played a significant role in the onset, severity, exacerbation, or maintenance or the pain" [3]. Pain disorder has limited usefulness in children since there are few studies to distinguish it from Conversion disorder.
6. Undifferentiated somatoform disorder is characterized by unexplained physical complaints and distress or unexpected functional impairment lasting at least 6 months, that are below the threshold for a diagnosis of somatization disorder. When somatoform symptoms do not meet the criteria for any of the specific somatoform disorders, a somatoform disorder not otherwise specified is utilized.

Relevance to Childhood Development

Patterns of somatization are thought to develop throughout childhood and to remain fairly stable in adulthood [4], with females more likely to report symptoms. While many physical complaints correspond to transient

symptoms and a number of children make complete recoveries from somatoform disorders, for some children symptoms grow to be disabling and functionally impairing and result in increased health care utilization [5, 8]. Differences in outcomes are accounted for by a variety of factors. The relevant literature identifies variability in the severity of symptoms, nature of treatments completed, comorbid disorders and problems, length of follow-up, or any combination of these as factors that potentially influence the course and outcome of psychosomatic problems in children [2]. Additional factors that have been found to increase the risk for both the onset of new somatoform conditions and for a stable course over time include female gender, lower social class, the experience of substance use, anxiety and affective disorder, as well as the occurrence of traumatic sexual and physical threat events [8]. A number of long-term consequences in personality development have also been suggested. Individuals who had a somatoform disorder as children or adolescents may continue with identified traits such as being harm avoidant, catastrophizing, symptom sensitive, perfectionistic, high achieving, learning impaired, traumatized, socially impaired, dependent, or passive in coping style. In such an individual, difficulties attaining expectations might add to preexisting anxiety and somatic complaints [2]. An injury, illness, or chronic condition might reinforce symptom anxiety and result in subsequent avoidance of the difficult situation, which would prohibit mastery over it. Remediation of underlying deficits or problems might become increasingly difficult over time as such individuals become progressively more dependent.

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Psychostimulants

►Stimulants

Psychotherapist

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Synonyms

Child and family therapist; Therapists

Definition

A psychotherapist is a professional who treats psychological disorders and other emotional disturbances with psychotherapy.

Description

A psychotherapist may practice psychotherapy, counseling or both. Technical distinctions between psychotherapy and counseling exist. In contrast to counseling, psychotherapy focuses on personality change, is often lengthier in duration, and deals with more severe forms of psychopathology. Counseling, comparatively, tends to be briefer and deal with problems in living rather than psychological disturbance. Despite these technical distinctions, most practitioners and consumers tend to use these two terms interchangeably, and most psychotherapists practice both counseling and psychotherapy.

Types of Psychotherapists

Psychotherapists vary by academic discipline, governmental regulation (e.g., licensure type) and psychotherapeutic treatments employed.

Psychotherapists come from a variety of academic backgrounds including Psychiatry, Psychology, Social Work, Counselor Education, Rehabilitation Counseling

and Psychiatric Nursing. They possess a variety of degrees, although they typically possess a masters or doctorate degree, such as the following: MD, Ph.D., PsyD, DSW, EdD, MA, MEd, MAEd, MSW, and MS. They may also possess an EdS (i.e., Educational Specialist) degree which is typically defined as 30 graduate hours beyond a masters degree, but is not a doctoral degree. Governmental regulation varies and thus requirements to practice psychotherapy vary across jurisdictions. Although the requirements vary, typically, one must have completed a terminal degree in their field, have completed specified coursework, completed a post-degree or post-coursework supervised experience, completed an exam and attested to a code of ethics. Continuing education is typically required for licensure renewal.

Government entities may issue licenses, certifications or registrations to psychotherapists. Some of the various licensure types include Licensed Psychologist, Licensed Clinical Psychologist, Licensed Clinical Social Worker (LCSW), Licensed Professional Counselor (LPC), Licensed Mental Health Counselor (LMHC), and Licensed Marriage and Family Therapists (LMFT). In addition to regulating who may practice psychotherapy, some jurisdictions also restrict who may use the titles associated with these license types (e.g., only those duly licensed in a jurisdiction may call themselves Licensed Psychologists).

There are a number of psychotherapeutic treatments practiced by psychotherapists.

Suggested websites

American Psychological Association www.apa.org
American Psychiatric Association www.psych.org
American Counseling Association www.counseling.org
American Mental Health Counselors Association www.amhca.org
American Psychiatric Nurses Association www.apna.org
Clinical Social Workers Association www.cswf.org
American Association for Marriage and Family Therapy www.aamft.org

Psychotherapy

►Dynamic Psychotherapy
►Reality Therapy

Psychotropic Medication

Synonyms

Psychodynamic medication; Psychoactive medication; Psychopharmaceutical medication

Definition

A class of medications that crosses the blood-brain barrier and interacts with the central nervous system (CNS) to affect the mind, emotions, and behavior.

Description

There are a number of psychotropic medications that can be prescribed for different disorders and symptoms. Psychotropic medications are also commonly used by individuals for recreational use because of their pleasurable effects on mood and consciousness. The main classes of psychotropic medications are:

Stimulants- Often prescribed to treat attention deficit/hyperactivity disorder (ADHD), narcolepsy, and short-term obesity. It works to speeds up the central nervous system, some examples are nicotine, cocaine, amphetamines, and caffeine.

Antidepressants- Prescribed to treat depression and anxiety, works to fix the imbalance of neurotransmitters such as serotonin, norepinephrine, and dopamine. The most popular antidepressant medications are selective serotonin reuptake inhibitors (SSRIs), including fluoxetine (Provac), citalopram (Celexa), sertraline (Zoloft), paroxetine (Paxil), and escitalopram (Lexapro).

Antipsychotics and atypical antipsychotics- Often prescribed to treat schizophrenia and bipolar disorder. Some of the most commonly prescribed "typical" antipsychotics are chlorpromazine (Thorazine), haloperidol (Haldol), perphenazine, and fluphenazine. "Atypical" antipsychotics are a newer antipsychotic medication that was created in the 1990s. Some examples are risperidone (Risperdal), olanzapine (Zyprexa), quetiapine (Seroquel), ziprasidone (Geodon), aripiprazole (Abilify), clozapine (Clorazil), and paliperidone (Invega).

Mood stabilizers- Commonly prescribed to treat bipolar disorder, they work on stabilizing mood. The most commonly used mood stabilizers are lithium and anticonvulsant medications, such as divalproex sodium (Depakote).

Benzodiazepines- An anti-anxiety medication that is more fast acting than antidepressants. The most commonly used are clonazepam (Klonopin), lorazepam (Ativan), and alprazolam (Xanax).

Beta-blockers- These medications are also used to treat anxiety; however, they aim to block some of the physical symptoms of anxiety, such as sweating and trembling. Some examples are acebutolol (Sectral), atenolol (Tenormin), bisoprolol (Zebeta), carvedilol (Coreg), metoprolol (Lopressor, Toprol XL), nadolol (Corgard), nebivolol (Bystolic), and propranolol (Inderal LA).

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National Institute of Health. National Institute of Mental Health, Health Topics: Mental Health Medications. http://www.nimh.nih.gov/health/publications/mental-health-medications/complete-index.shtml

PTSD

►Posttraumatic Stress Disorder

PubChem # 2712

►Chlordiazepoxide

Pubertal Development

►Puberty

Puberty

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Synonyms

Pubertal development

Definition

Puberty is the developmental period during which a person becomes capable of sexual reproduction.

Description

Puberty (derived from the Latin "to grow hairy") describes the period of rapid physical *maturation* that takes place primarily during *adolescence*. It marks the beginning of sexual maturation and involves a series of hormonal and bodily changes that lead to the achievement of *fertility* and includes the development of *secondary sex characteristics*, such as breast development or hair growth.

Relevance to Childhood Development

The onset of puberty varies among individual adolescents. Puberty usually begins in girls between the ages of 10 and 14 years, and between the ages of 12 and 16 for boys. In most girls, the first sign of puberty is the beginning of breast development, followed by growth of pubic and armpit hair. The onset of *menstruation (menarche)* is typically the last indication of pubertal development and signals fertility. For boys, the first sign of puberty is an increase in the size of the testicles, followed by an increase in the size of the penis, and an increase in pubic and armpit hair. Fertility is achieved in boys near the onset of puberty with a surge of testosterone that triggers the production of sperm (*spermarche*). The sequence of changes that occur during puberty have been classified by sexual maturity rating (SMR) and are referred to as *Tanner Stages*. Tanner stages are determined by the development of secondary sex characteristics and help classify puberty development from Stage 1 (prepubertal) to stage 5 (mature adult type). Other physical changes that accompany puberty include the growth spurt, bone growth and mineralization, changes in the respiratory and circulatory systems, and changes in body fat and muscle distribution. Because puberty occurs during adolescence, it is often associated with various other cognitive, social, and emotional developments that occur during the same period.

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Public Duty

►Social Responsibility

Public Health Psychology

►Health Psychology

Publishing

►Media

Puke

►Purging

Punisher

►Aversive Stimulus

Punishment

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Synonyms

Discipline; Timeouts

Definition

Punishment is a behavioral process in which a response produces the presentation of an aversive consequence or termination of an desirable stimulus thereby decreasing the future probability occurrence of the response under similar circumstances [1, 3]. This process is most effective when the punisher (i.e., aversive stimulus) is presented contingent upon the response, is presented immediately following the response, is used sparingly, and is greater in magnitude than the stimulus otherwise produced by the response [3]. As with reinforcement, there are two forms of punishment: positive and negative punishment. Positive punishment is a process by which a stimulus is added to the environment contingent on a response which subsequently decreases the future probability of the response. For example, if a child is barefoot at the beach and walks onto hot sand, the pain delivered from the hot sand decreases the likelihood that the child will walk barefoot on sand again in the future. Negative punishment is a process by which a stimulus is removed from the environment contingent on a response which subsequently then decreases the future probability of the response. A common example of negative punishment is time out. In a time out procedure, the child is removed from the desirable activity/location/person contingent on the behavior one wishes to reduce. For example, a parent might place their child in time out when that child engages in aggression with a playmate. The challenge with negative punishment procedures is maintaining an environment that is in sharp contrast to the time out situation (i.e., must have reinforcing time in). Punishment, regardless of it being positive or negative, functions to decrease the probability of a response, be it a desirable or undesirable behavior. Punishment is a quick way to reduce undesirable behavior, but it is often considered to be a procedure of last resort for affecting behavior change as it is associated with side effects [2, 4]. Since punishment procedures rely on the presentation of aversive stimuli or removal of desirable stimuli, an individual develop other maladaptive behaviors (e.g., aggression) to escape or counter the controlling contingencies or an individual may refrain from engaging in the response only in the presence of the punisher or when the punishment contingencies are in effect. In other words, behaviors under the control of punishment are likely to reoccur when the punisher is removed from the environment [5]. Nonetheless, punishment is useful for eliminating dangerous behaviors as immediately as possible.

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Purdue Pegboard Dexterity Test

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Definition

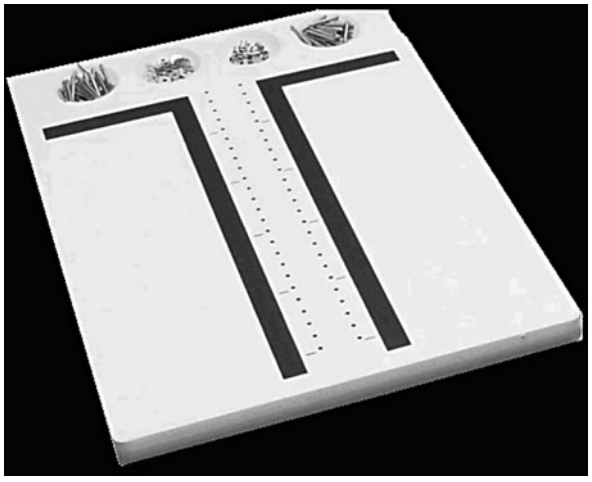
The Purdue Pegboard is a standardized test that measures finger and hand dexterity [4].

Description

The Purdue Pegboard was developed by Joseph Tiffin, Ph.D., in 1948. The test has been used most extensively in personnel selection for jobs that require fine and gross motor dexterity. The test measures the gross motor dexterity of hands, fingers and arms, as well as the fine motor dexterity of fingertips. In addition to being employed in personnel selection, the Purdue Pegboard test has also been used in neuropsychological assessments as it has been found to be sensitive to the presence of brain damage.

The Purdue Pegboard is a board featuring two columns of 25 holes each. At the top of the board are four cups. The pins (pegs) are kept in the outer left and right cups and the collars and washers are kept in the middle cups (see Fig. 1). There are four subtests of the Purdue Pegboard. In the first three subtests, the participant has 30 s to place as many pins as possible in the holes using first their dominant hand, then non-dominant hand, and finally both hands. The participant is required to start at the top of the board and use the right column when testing the right hand, the left column when testing the left hand and both columns when testing both hands. In the forth subtest, the participant has 1 min to construct as many assemblies as possible. Each assembly consists of a pin, a washer, a collar and another washer. The assemblies are constructed using alternative movements of the right and left hands. For example, the participant would pick up a pin with the right hand and then a washer with the left and so on [5].

A demonstration and practice period is provided at the beginning of each subtest. The Purdue Pegboard is scored by calculating the number of pins placed for each hand separately and the number of pairs placed when using both hands. The assembly score is calculated by the number of parts assembled. Normative data are available for males and females ranging from 5 years to 90 years old.



Purdue Pegboard Dexterity Test. Fig. 1 The Purdue Pegboard 32020 (Picture adapted from Lafayette Instrument Company).

Relevance to Childhood Development

Motor skills and co-ordination are basic processing skills that are important to the healthy development of children. In addition, these skills are influential in the development of higher-level cognitive abilities and academic achievement. The Purdue Pegboard is often used to assess fine motor skills and hand-eye coordination in children with a variety of disorders and disease that manifest in childhood and that preferentially effect the development or maintenance of motor skills and co-ordination. For example, Developmental Coordination Disorder (DCD) is characterized by impairment in the development of motor coordination. This impairment interferes with daily activities and often also academic achievements. DCD effects 5–6% of school age children [3]. The Purdue Pegboard assessment can be useful in establishing the severity of the impairment as well as the efficacy of interventions. Similarly, the Purdue Pegboard assessment of the adverse effects of therapy on children with acute lymphocytic leukemia revealed significant slowing of fine motor speed and dexterity [1]. The identification of these side effects of therapy helps researchers to develop interventions that limit the long-term effects of therapy. The Purdue Pegboard can also be employed as part of a neuropsychological test battery to assess the recovery of a child who has experienced traumatic brain injury [2]. Specifically, it is a useful way to establish which skills require more intense remediation.

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Purging

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Synonyms

Barf; Cleaning; Disposal; Elimination; Evacuation; Ejection; Excretion; Expulsion; Heave; Hurl; Pass; Purification; Puke; Regurgitate; Spew; Throw up; Upchuck; Vomit

Definition

Purging is the removal or elimination of impurities or other elements.

Description

The removal of something unwanted or perceived to be impure most commonly associated with the evacuation from the bowels. Cassell and Gleaves [2] characterized the term as the, "forced expulsion of ingested foods and a purification rite as a means to gain self-control by bulimics" (p. 256). These authors further posited that individuals engage in this behavior to regain their sense of self-discipline and to feel as though they are "good persons who are fresh and clean" ([2], p. 256). This process of cleansing and removing impurities is most often associated with eating disorders such as Anorexia Nervosa (AN) and Bulimia Nervosa (BN) as a method of weight control and calorie reduction. However, purging is also regarded as a sign or symptom of Binge eating disorder (BED), and as current research has progressed is also linked to Purging disorder (PD).

The evacuation process is completed by utilizing a variety of methods such as: self-induced vomiting, fasting, over-exercising, or the misuse of enemas, diuretics, or laxatives to expel food. People do also use various objects to induce the purging process for example, the smooth end of a toothbrush or one's finger. Self-induced vomiting is one of the most frequently used methods of purging from a clinical standpoint. According to the *Diagnostic and Statistical Manual of Mental Disorders, 4th Ed., Text Revision* (*DSM-IV-TR* [1]) if an individual meets diagnostic criteria for Anorexia Nervosa (AN), but they also engage in binge eating (e.g., consumption of an excessive amount of calories, some known to digest up to 5,000 calories in a short period of time) and purging behaviors then the diagnosis of Anorexia Nervosa binge eating-purging (ANBP) type is given. Additionally, if an individual meets clinical criteria for Bulimia Nervosa (BN) the disorder will be broken down into either nonpurging type (BN-NP) or purging type (BN-P).

Diagnosis is made when an individual admits to using one or multiple methods listed as a means of purification along with meeting diagnostic criteria as that set by the *DSM-IV-TR* [1] for an eating disorder.

Participating in these behaviors causes serious health concerns and risks such as myocardial infarction (e.g., heart attack) due to electrolyte imbalance, esophageal tears, absence of menstrual cycle (e.g., amenorrhea), dehydration, tooth decay and removal of tooth enamel from repeated exposure to stomach acid, chronic bowel problems, damage to skin and nails, subconjunctival hemorrhage (e.g., broken blood vessels), and at the worst case death. Emotional and social consequences usually follow this type of behavior such as depression, erratic mood swings, anxiety, shame, guilt, suicidal ideation, impairment in psychosocial functioning, and social withdrawal, which in cases can manifest into a full blown psychiatric disorder called, Purging disorder (PD) a newly rediscovered eating disorder [5]. Some may find it difficult to differentiate Anorexia Nervosa (AN), Bulimia Nervosa (BN), or Binge Eating Disorder (BED) with a diagnosis of Purging disorder (PD). Although the idea of "Purging disorder" is something that has been around for over 20 years, Keel [4] recently uncovered more information to support the clinical existence of this disorder. Keel [4] further defined that for one to be diagnosed with Purging disorder they must exhibit the following:

- (a)regularly use self-induced vomiting, laxatives, or diuretics, (b) individuals are not significantly underweight with a minimum body mass index (BMI) above 18.5 kg/m^2, (c) individuals do not have large out of control binge-eating episodes, and (d) individuals have significant body image disturbances. (pp. 1–2)

Continued research on the clinical significance of the diagnosis of Purging disorder (PD) looking at the causes, signs and symptoms, diagnostic criteria set by the *DSM-IV-TR* [1] Diagnostic and Statistical Manual of Mental Disorders, and treatment options is something that is greatly needed for the future. In concluding, purging is the process to get rid of or eliminate, often recognized with clinical disorders centered around eating disorders.

Relevance to Childhood Development

Children as young as four years of age are struggling with body image concerns or wish to be on a diet to lose weight to avoid being labeled fat. With the advent of the world-wide best selling doll, Barbie, on March 9, 1959, 90% of all

girls ages three to ten own at least one Barbie doll with American girls owning an average of 12 Barbie dolls; it is no wonder that she brings in revenue over $1.5 billion dollars annually [6]. For especially young girls Barbie is a "cultural icon of female beauty" and what young girls strive to mimic when it comes to body image, appearance, and body weight which can have detrimental effects on one's self-esteem and self-concept ([3], p. 283). Dittmar, Halliwell and Ive [3] assessed the exposure to images of Barbie doll, Emme doll ([7]; e.g., mirrors the body size of the average U.S. woman), and neutral (e.g., control) images adopted from picture books with five to eight year old girls. [3] found that young girls from the age of five and a half to six and a half experienced a dramatic decrease in body esteem and decreased satisfaction with their current body size making them desire a thinner body like the "thin ideal" Barbie portrays. These researchers also stated that the impact of the images of Barbie was even more pronounced and evident on body esteem dissatisfaction and body image dissatisfaction among those girls age six and a half to seven and a half indicating an even greater risk to the development of eating disorders [3]. The constant exposure of these images to young girls and the strong emphasis society places on these unrealistic thin ideals of what it means to be beautiful may increase the chance that young girls adopt unhealthy strategies such as purging to obtain thinner bodies

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Purification

►Purging

Purpose

►Motivation

Purposeful

►Intentionality

Pustules

►Acne

Putamen

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Definition

The Putamen is a large nucleus of the Basal Ganglia which, in combination with the other nuclei and structures of this area, participates in the control of higher-order movement.

Description

The Putamen is a large nucleus of the forebrain that with the caudate nucleus forms the Striatum [1]. However, the Putamen is also conceptualized as one portion of the Lentiform Nucleus, in combination with the Globus Pallidus [2]. The Putamen is linked with both groupings as it serves to bridge the caudate nucleus and Globus Pallidus and thus is directly connected with both, while caudate nucleus and Globus Pallidus are only connected to one another by way of the Putamen. All three structures (i.e., Putamen, Caudate Nucleus, and Globus Pallidus) represent parts of the Basal Ganglia. The Basal Ganglia share complex interconnections with other structures and regions of the motor system allowing this grouping to participate in the control of higher-order movement, particularly in starting or initiating movement [4]. Due to the close proximity of these structures it is difficult to differentiate the functional roles each play. Rather, it is their

interconnections that together correspond with their influence on the motor systems. One such pathway is the Striato-Pallido-Thalamic loop, in which the Putamen, as part of the Stiatum, with the Caudate Nucleus, represents the site at which information is received. At this point, information is received from multiple sources of the Neocortex, including the motor system, sensory and higher integrative areas of the cortex, the language center of Broca's and Wernicke's areas, the thalamic nuclei, and the Substantia Nigra [4]. This information is, in turn, projected to aspects of the Thalamus by way of the Globus Pallidus and from there to the motor areas of the cortex [3]. In addition to these links, the Basal Ganglia present with reciprocal connections with the Midbrain, especially the Substantia Nigra, which is a nuclei of the Tegmentum [3]. This connection is essential to as the Substantia Nigra represents a site of origin of the vast majority of Dopamine-containing neurons within the system which demonstrate an excitatory impact thus helping initiate movement [1].

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Pygmalion Effect

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Synonyms

Experimenter bias; Halo effect; Rosenthal effect; Self-fulfilling prophecy; Teacher-expectancy effect

Definition

The Pygmalion effect refers to situations where teacher expectancies of student performance become self-fulfilling prophecies; students perform better or worse than other students based on the way their teacher expects them to perform.

Description

This effect is named after George Bernard Shaw's play, *Pygmalion* (1913), where a phonetics professor is successful in making a bet that he can teach a poor flower girl to act like an upper-class lady. The term Pygmalion originated in Greek legend with Pygmalion, the king of Cyprus, who was a sculptor. Pygmalion fell in love with a beautiful statue of his own creation, which subsequently came to life.

In psychology, the Pygmalion effect, as proposed by Robert Rosenthal and Lenore Jacobson (1968), applies the ideas of Merton's self-fulfilling prophecy (2) to education (1). Rosenthal and Jacobson's landmark Oak School experiment (1968) examined the influence of teacher's expectations on student performance. A student who is expected to perform well, should in fact, perform better than when not expected to perform as well. This self-fulfilling prophecy is referred to as the Pygmalion effect. The Pygmalion effect is a relevant consideration when examining the social, psychological and developmental dynamics between teachers and students in the classroom.

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Q

Q-Sort Method Attachment

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Definition

The Q-Sort is a measure of attachment used to assess children and toddlers (12–48 months of age).

Description

According to Bowlby's [2] classic theory of attachment an infant's early interactions and experiences with primary caregivers is the basis for the formation of their attachment to parents. Based upon this initial relationship infants come to internalize their attachment to their caregiver. This process was defined by Bowlby [2] as an infant's *internal working model*. In addition to Bowlby's theory several researchers have expanded upon his initial ideas [1, 3, 4].

Through empirical research several different methods of measuring attachment have been developed (e.g., strange situation). One such method is the Q-sort attachment measure. The Q-Sort attachment measure was first introduced through the collective works of Waters and Deane [6]. Since first being developed the Q-sort has been reviewed several times. Based on the initial development of the tool, the Q-Sort attachment measure is composed of numerous cards (75, 90, or 100). A single observer when administering the Q-sort uses these cards. In order to provide accurate ratings these observers require training to administer the Q-sort. A trained observer uses the cards to rate a child or toddler's behaviors after several hours of surveillance. Surveillance can be conducted within varying contexts. Upon each card behaviors are described, which are potentially characteristic of the children being observed. Overall, it is recommended that the child be observed for an average of 3 hours in order to produce accurate rankings. It is recommended that observers collect data over several different time periods. Once the observer has completed their surveillance of the subject the cards are ranked along a continuum. Each item is sorted into one or more piles according to how characteristic it is of the child. Thus, cards are ranked as either very descriptive of the child or not descriptive of the child. Once all of the cards have been ranked the final rankings are compared to the typical rankings of a securely attached child. Rankings can range from perfectly positive score (1.0) to perfectly negative score (−1.0). A perfectly positive correlation indicates that the child is securely attached. In contrast, a perfectly negative correlation indicates that the child is insecurely attached. Scoring does not allow for distinctions to be made among subtypes of insecure children.

Van Ijzendoorn, Vereijken, Bakermans-Kranenburg and Riksen-Walraven [5] performed a meta-analysis of 139 studies on the Q-sort attachment measure. The researchers concluded that measurement of attachment produced through the Q-sort method did converge with attachment measures obtained through the strange situation method. In addition, compared to other attachment measures the Q-sort method allows researchers to measure attachment within varying settings. Thus, permitting researchers with the flexibility to measure attachment outside of the laboratory setting. Since its initial introduction the Q-sort method has been revised several times. Based upon empirical research no differences in effect sizes have been found, to date. Furthermore, researchers have found support for the use of the Q-sort within cross-cultural contexts.

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Quality of Life

►Life Satisfaction

Queer

►Homosexuality

Quetiapine

Synonyms

Ketipinor; Quetiapine fumarate; Seroquel; Seroquel XR

Definition

An antipsychotic drug prescribed for the treatment of schizophrenia, bipolar disorder and used off-label for a variety of other purposes, including insomnia and anxiety disorders.

Description

Quetiapine (pronounced /kwɪˈtaɪ.əpiːn/ *kwi-TYE-ə-peen*) is an atypical or second generation antipsychotic drug marketed by AstraZeneca as Seroquel or SeroquelXR and by Orion Pharma as Ketipinor. Annual sales are approximately $4.7 billion worldwide, and $2.9 billion in the United States. Quetiapine is indicated for the treatment of schizophrenia and as either monotherapy or adjunct therapy for depressive episodes associated with bipolar disorder and acute manic episodes associated bipolar I disorder.

Frequent side effects include headache, agitation, dizziness, drowsiness, weight gain, stomach upset and hyperglycemia. Quetiapine can cause orthostatic hypotension (a drop in blood pressure upon standing that can lead to dizziness or fainting) especially during the first 3-5 day period of treatment, when it is restarted after temporary discontinuation, and after an increase in the dose. The most common side effect of quetiapine is sedation and care should be exercised in any activity requiring mental alertness such as operating a motor vehicle or hazardous machinery. Less common side effects include seizures and hypothyroidism. As with other antipsychotics, long-term use of quetiapine may lead to irreversible tardive dyskinesia, a neurologic disease that consists of involuntary movements of the jaw, lips and tongue. Preexisting conditions or history of liver or kidney disease; heart disease, high blood pressure, heart rhythm problems; heart attack or stroke; low white blood cell (WBC) counts; thyroid disorder; seizures or epilepsy; high cholesterol or triglycerides; diabetes; or trouble swallowing may require dose adjustment or special tests to safely take quetiapine.

Quetiapine Fumarate

►Quetiapine

Quicksilver

►Mercury

R

Race

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Synonyms

Ethnicity; Racial identity

Definition

A biological inbreeding, geographically isolated, population that differs in physical traits from other members of the species. Race is a historical categorization system used to make ostensible distinctions among populations or groups, based on a set of physical characteristics. Typically, these characteristics include skin tone or color, hair texture, and facial (cranial) features.

Description

In 1998, the American Anthropology Association published an official statement, noting that "human populations are not unambiguous, clearly demarcated, biologically distinct groups" [1]. Race is viewed by this discipline as a variable concept that is influenced by culture, history, politics and science. Some would even argue that while this taxonomy is useless for humans, it may be a valid and useful model for other species.

The sociological perspective on race is one that focuses on groups who share certain characteristics with their members and the degree to which they interact, i.e., share norms and roles and share a common identity. Despite the fact that many psychologists continue to embrace an essentialist approach and rely on race as a biological fact, the fact remains that it is a mutable variable.

While the term "race" is typically attributed to the period of European imperialism (seventeenth to eighteenth century) and colonization, there exists ample historical evidence that long before this period scientists, philosophers, and rulers were interested in understanding the significance of physical similarity and difference. Ancient Egypt, for example, is credited with the development of some of the original taxonomic concepts that have developed over time, including such categories as "Egyptians," "Asiatics," "Libyans," and "Nubians." Although these categories were based around physical features, they were typically assumed as indicative of sociocultural affiliations and used largely for purposes of making tribal and other distinctions.

Johann Friedrich Blumenbach (1752–1840) is considered the first to systematically study skull features as a method of determining categorical differences among a number of species, including humans. Although he viewed race as about minute variations, Blumenbach's *The Natural Varieties of Mankind* introduced a classification of five varieties of man, including the more commonly used categories of Caucasoid, Mongoloid, and Negroid (his text also identified the categories American Indian and Malayan). Race has been used as a means for demonstrating ostensibly how one race might be innately superior in intelligence (Caucasoid), while another may have greater physical prowess or abilities (Negroid). The European quest for global expansion, including the transatlantic slave trade, provided a major rationale for instituting a categorization system.

Relevance to Childhood Development

Identity is well grounded in the developmental changes that occur from childhood to old age. Identity formation begins early in life, but it continues to develop throughout the lifespan. Racial identity helps shape the attitudes of children and adolescents as well as attitudes about individuals of other racial groups. Racial identity, like any social identity, is a negotiated understanding of who one is and, reciprocally, a negotiated understanding of who others believe one to be. It can be said that while social identity is the generic, racial identity is a case in point, framed by its own unique historical influences which have impacted the ways in which this concept has been viewed and systematically studied.

Race and the role of child development have long been an issue of contention and concern. Developmental outcomes are often moderated by race and other sociocultural factors. In the U.S., for example, the interaction of race and poverty provide for predictably negative outcomes in many cases.

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

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Racial Identity

►Bicultural Identity
►Race

Racism

►Prejudice

RAD

►Reactive Attachment Disorder

Radical Behaviorism

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Synonyms

Behavior analysis; Functional behavior analysis; Skinner's behaviorism

Definition

Radical Behaviorism is a philosophy of psychology concerned with a natural scientific approach to the study of behavior. It differs from other types of behaviorism in that it includes as its subject matter both private and public events.

Description

Behaviorism was first mentioned in a lecture in 1908 by the French psychologist H. Peiron. It was further espoused in J. B. Watson's 1913 paper, "Psychology as the behaviorist views it" [3]. Watson insisted that behavior was a worthy subject matter in its own right rather than being seen as epiphenomena of mental events. His behaviorism has been called "methodological behaviorism" and rejected the observation of events that were not available to third-persons, removing thoughts and feelings from the scientific study of behavior.

In his 1938 book, *Science of Human Behavior*, B. F. Skinner expanded the field of study to include these private events, insisting that they were behavior much the same as walking and talking. Skinner, and thus *radical behaviorism*, differed from methodological behaviorism in that radical behaviorism does not rely on third-party objectivity for the inclusion of subject matter. This view states that private behavior is subject to the same influences, principles, and laws as public behavior.

Radical behaviorism poses that while physiology may be of assistance in studying the subject matter of psychology (behavior), it cannot change psychology. This is an important distinction when considering developmental psychology.

Relevance to Childhood Development

Contemporary developmental psychology can be described as a collection of multiple mini-theories without a single overarching unified theory. This is due, in part, to the structural approach to behavior that is taken by many developmental psychologists. One criticism of this approach is that the myriad of mini-theories are focusing on the outcomes of development as their subject matter, often to the exclusion of the study of how the processes occur which lead to these outcomes. While the field of developmental psychology has generated vast amounts of research, there is little unity in the orientation, leading to varying and sometimes conflicting interpretations of the same research results.

Radical behaviorism is the philosophy from which the science of behavior analysis is developed. This offers a single unified natural scientific theory of behavior from which to approach and interpret the results of research.

Behavior analysis posits that the variables determining behavior are found in the environment rather than in the child. By focusing on function rather than structure of behavior, behavior analysts begin to look at the processes responsible for outcomes of development rather than the outcomes themselves.

The behavior analysis of child development began by Sid Bijou and Don Baer in the 1960s in a model that adopted the radical behaviorism and J. R. Kantor's interbehavioral approach. Like many contemporary theories of psychological development, this model had stages (three), however they were neither essential nor explanatory, and most importantly, they were deemed socially determined. As the behavior analytic research into childhood development continued, behavior analysts tended to focus on the behaviors that preceded changes in stages. This was observed by large differences in the child's ability to interact with the environment due to a seemingly small behavior change, and was named a ▶behavioral cusp [1]. At this point, most behavior analysts tended to focus their study on behavioral cusps rather than stages, once again emphasizing the importance of the process leading to outcomes, rather than the outcomes themselves.

Gary Novak and Martha Pelaez took the behavior analytic developmental model and updated it by including a dynamic systems model that resulted in the behavioral systems approach to child development, which provides a comprehensive approach that scales four levels of systems from the basic processes to the societal and cultural levels.

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Radio

▶Media

RADS

▶Reynolds Adolescent Depression Scale 2

RADS-2

▶Reynolds Adolescent Depression Scale 2

RAN

▶Rapid Automized Naming

Random Coefficient Models

▶Hierarchical Linear Modeling

Raphe Nuclei

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Synonyms

Nuclei of the Raphe

Definition

The raphe nuclei represent a cluster of neurons in the posterior regions of the brainstem that is the primary site of serotonin production.

Description

The raphe nuclei is a cluster of neurons that are housed in the pons and medulla within the hindbrain [4]. Functionally, it is the primary site of serotonin production [5]. Serotonin is an essential neurotransmitter of the central nervous system that is found throughout brain regions that play a vital role in regulating aspects of eating, sleep and emotional behavior [2]. Projections of the raphe nuclei may be differentiated based on whether the serotonergic pathway originates from either the rostral or caudal end. The rostral raphe nuclei of the midbrain and rostral pons project to the entire forebrain, including the cortex (e.g., limbic system), thalamus, and basal ganglia [1]. These projections are those that have been most linked with the manifestation of various psychiatric manifestations. Specifically, increased serotonin activity has been related to obsessive-compulsive disorders, tics, and schizophrenia whereas decreased serotonin activity is

linked to depression [3]. Aside from these anterior projections, the caudal raphe nuclei of the caudal pons and medulla project to the cerebellum, medulla, and spinal cord [1]. These projections play a role in pain modulation as well as in aspects of wakefulness [1, 5].

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Rapid Automized Naming

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Synonyms

Automized naming; RAN; Rapid naming; Speed naming

Definition

Rapid Automized Naming (RAN) is a cognitive construct referring to the processing speed and executive control in language access, and is related to lexical access and automaticity of verbal encoding and producing verbal information [7, 8]. The RAN function is impacted by naming ability, basic expressive language, processing speed, working memory, association memory, and long-term verbal memory [8].

Description

RAN accounts for sizable variance in reading when phonological awareness and overall level of intelligence are partialled out and is considered an excellent predictor of early reading achievement [2, 9]. RAN has been shown to make a consistent contribution to reading beyond phonological awareness, orthographic processing, and memory [1, 10, 13]. Impairment of the RAN functions is considered one of primary causes of reading difficulties in children [13]. This is supported by studies of reading, which provide evidence that individuals with poor reading skills can be separated into three subgroups, including poor readers with phonological awareness deficit, poor readers with RAN deficit, and poor readers with both deficits. This suggests that reading difficulties are related to the RAN functions and RAN is independent of phonological awareness [13].

RAN is typically measured through speeded naming tasks, which are a common element of neuropsychological and/or psychoeducational tests when language is investigated. RAN assessment typically requires participants to rapidly name the size, shape, and/or color of presented stimuli. Typically, scores on the test are based on the total number of characteristics named correctly for each figure and the time taken to complete the task. Difficulties in RAN performance tasks are related to a number of factors, including poor phonological processing skills or recall ability, impulsivity, and slow processing speed [2, 3].

Relevance to Childhood Development

Research has established RAN is a valid and reliable predictor of reading success in children [4–6, 12]. Types of RAN tasks tend to have different predictive strength; presymbolic types of RAN tasks (colors and objects) outperform symbolic RAN tests (numbers and letters) in the strength of their relationship to reading skills and vocabulary across grades [11]. Yet, symbolic RAN tends to be a key factor in distinguishing between good and poor readers among children with attention deficit hyperactivity disorder (ADHD) [3].

According to a number of studies, it appears that various RAN performances may be able to distinguish between different clinical groups of children, including reading disabilities (RD), ADHD, and combined RD and ADHD. Additionally, specific RAN tasks, including numbers and letters RAN, are better concurrent discriminators, whereas other RAN tasks, such as the color and objects RAN, and better predictors of reading impairments [3]. Poor RAN performance suggests difficulties related to automaticity of naming, processing speed, or naming ability. Children who display difficulties in the area of speed and automaticity of verbal encoding tend to struggle with decoding of the textual information, and their reading is usually laborious and slow. However, they tend to have normal reading and language comprehension skills [13].

RAN performance may be indicative of connection between spoken and written word. Therefore, reduced RAN ability may be an indicator of problems with accessing correct language labels, and related to deficient retrieval of sound-symbol associations, which may be further related to *dysnomia* [8]. Finally, RAN largely depends on attention and motor skills, and children with attention and/or motor problems are likely to perform poorly on the RAN tasks [8].

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Rapid Eye Movement Sleep

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Synonyms

Dream sleep; Dream state; REM; REM Sleep; Stage 5 sleep

Definition

Rapid eye movement sleep is one of five stages of sleep and is characterized by dipolar saccadic eye movements, increased central nervous system activity, muscle paralysis (except for breathing and erectile function), and coincides with dreaming.

Description

REM sleep was first described and discovered as a unique sleep state in 1953 by Aserinsky and Kleitman [1]. This relatively recent discovery lead to a reconceptualization of sleep, which was previously thought to be a state of passivity. In contrast, EEG recordings and reports of dreaming during the newly identified REM period indicated a highly active brain state, similar to that of a waking state [1].

Characteristics: REM typically occurs 70–90 min after sleep onset. One sleep cycle, achieving each of the five sleep stages, lasts approximately 90–110 min. Length of REM sleep during each sleep cycle increases as the night progresses. Initial REM periods average approximately 10 min, while REM sleep in the early morning hours may last up to 60 min [4, 6].

REM sleep is initiated by signals in the pons area at the base of the brain. Neural signals then pass through the thalamus and then the cerebral cortex, the outer layer of the brain responsible for complex thinking and reasoning. The pons also initiates motor paralysis by limiting activation to the spinal chord. When this aspect of REM is disrupted, people may demonstrate sleep behavior disorders [4].

REM sleep is often characterized by increased central nervous system (CNS) activation, oxygen consumption in the brain, and increased neural blood flow [4]. Other physiological characteristics include decreased REM sleep propensity at lowered body temperature, decreased muscle tone, and increased heart rate variability, although average heart rate tends to be diminished (by up to 8%) compared with humans' restful waking state [2, 6]. Temperature regulation may also be more difficult during REM, resulting in reports of feeling too hot or too cold when woken during this stage [2–4].

Measurement: REM may be visually identified, though not with clinically sufficient accuracy, by the saccadic eye movements characteristic of this sleep phase. Sophisticated measures of sleep phase include a combination of EEG data, muscle tone, eye movement measurements, breathing and heart rate as measured by electrodes placed on the head, face, legs, fingers, and breathing monitors. Specifically, decreased chin tone, heart rate, and breathing rate are noted during REM in most people. Breathing rate

during REM is also typically more erratic, and oxygen consumption increases [7].

Importance: The importance of REM sleep in maintaining normal daytime functioning is critical, as inadequate amounts of REM sleep or disrupted REM sleep may result in excessive daytime sleepiness. Sleep deprivation studies have shown that consistent REM sleep deprivation may result in experiencing hallucinations, excessive irritability, and diminished reasoning abilities [3]. Diminished REM sleep may also result in decreased immune functioning [7]. REM deprivation studies with rats and other mammals have also shown that abrupt and severe REM deprivation leads to an increased propensity to fall into REM, and eventual organic functions failure and death [5]. Less severe studies with humans have shown fewer ill effects of REM deprivation, however the inclination to fall into REM sleep more rapidly and for longer periods also occurs in humans [2].

Research indicates that REM sleep plays a key role in information processing and procedural memory functioning (compared with declarative) in particular. Increased CNS activation is considered an associated component of these memory functions [4].

The importance of dreaming, which occurs during REM sleep, is largely unknown. Early psychologists, including Sigmund Freud, hypothesized that dream sleep was essential for working through repressed or hidden psychic distress. Other hypotheses suggest that dreaming is the cortex's attempt to organize and interpret random neural firing or that neurological activation is directly related to the previous day's events [2, 6].

Disruptions in REM sleep: Antidepressants suppress REM sleep [7]. Heavy smokers may demonstrate reduced REM sleep, and alcohol consumption may also result in decreased amounts of REM sleep [7]. Although concerns with substance use are less prevalent in pediatric populations, adolescent substance use and psychotropic medications are important factors to consider when assessing disruptions in REM sleep.

Sleep apneaic events tend to occur more frequently during REM sleep, particularly obstructive apnea, which is exacerbated by the decreased muscle tone that is present during REM sleep. Other sleep disorders, including parasomnias, that are also associated with REM sleep are nightmares, sleep paralysis, sleep behavior disorders (moving in sleep), circadian rhythm disorders, and delayed sleep phase syndrome [3, 6]. Nightmares frequently occur in childhood, and are associated with the REM sleep period.

Relevance to Childhood Development

Due to the importance of REM sleep for maintaining adequate daytime functioning, children and adolescents who exhibit REM sleep disorders or experience disruptions in REM sleep due to sleep apnea, substance use withdrawal, psychotropic medication use, parasomnias, etc., often experience significant daytime functioning difficulty. Excessive daytime sleepiness that results from disruptions in sleep quality has a notable impact on school functioning, attention, motor coordination, and mood. Specifically, children who do not maintain adequate amounts of overall or REM sleep often have lower grades, demonstrate attention and behavioral difficulties in school and at home, demonstrate decreased fine motor coordination, have more depressed mood, and are less sociable [3].

Developmental Changes: Sleep in newborns is comprised of approximately 50% REM sleep, a ratio that decreases developmentally. REM composes 30% of overall sleep time in 1–2 year olds, and 20–25% of total sleep time by 5 years of age. This ratio is maintained throughout adolescence and most of adulthood [3].

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Rapid Naming

►Rapid Automized Naming

Rating Scales

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Synonyms

Record judgment of qualitative variables; Semi-objective scales

Definition

Instruments designed to have individuals provide quantitative/semiquantitative ratings to variables using a set of numbers or categories. Quantitative judgments are provided or attributed to the raters with the numerical values being available for statistical measures, such as the mean.

Description

Rating scales may consist of a number of categories and/or an array of numbers representing a level of performance. One example is a typical 1–5 Likert Scale which might assign the following variables to each number.

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Whereas rating in sporting events may award a number from 1 to 10 to represent the judgment of performance, typically research that uses rating scales asks examinees how they feel or perceive a situation or circumstance. After the numbers are obtained from the rating scale, they are typically considered direct metrics and can, therefore, be used in calculating averages or in statistical analysis. However, statistically a number of assumptions must be made concerning the underlining distribution.

Relevance to Childhood Development

Rating scales are an often used assessment tool when working with children. They allow the examiner to quickly gather information on a variety of subjects. Specific rating scales that are commonly seen when working with children are the *Behavior Assessment System for Children* – second edition and vineland adaptive behavior scales.

The compendium *Assessment Scales in Psychiatry Series*, edited by Alistair Burns (2006) [4] is an excellent work that covers comprehensively the major rating scales used in clinical and research assessment of children. The book contains concise summaries of important information on over a hundred different children's rating scales. The compendium groups the rating scales into three broad categories: (1) general or broadband behavior rating scales; (2) scales for specific problems as seen in the DSM-IV-TR and ICD-10; and (3) impairment scales. Each entry contains a description of the scale including its uses and psychometric properties. Of additional importance, the compendium also includes (with permission) either sample items from each scale or the entire scale itself.

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Ratio IQ

►Intelligence Quotient

Rationalizing

►Critical Thinking

Raymond Dean

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Life Dates

1946–Present

Introduction

Dr. Dean is a well-known and influential neuropsychologist whose work has stressed the need for increased

understanding of neurological functioning through the assessment of specific cognitive and sensory motor functioning.

Educational Information

Originally from New York, Dr. Dean graduated with a BA degree in Psychology and an MS degree in Research and Psychometrics from the State University of New York at Albany. Upon graduation he received the Parachek-Frazier Research Fellow and went on to complete his PhD in School/Child Clinical Psychology at Arizona State University. Dr. Dean later completed a neuropsychological internship at Arizona Neuropsychiatric Hospital and postdoctoral training at the University of Wisconsin at Madison. His career and research has been strong influenced by his association and training with noted psychologists Dr. Ralph Reitan and Dr. Richard W. Woodcock.

Accomplishments

Dr. Dean has been a prolific writer in the area of Neuropsychology contributing more than 500 research articles, books, and chapters to the field. He has served as a Distinguished Visiting Faculty at the Staff College of the National Institute of Mental Health. Additionally, Dr. Dean is a past President of the Clinical Neuropsychology Division of the APA and the National Academy of Neuropsychology, and was elected Fellow of the American Psychological Association. Dr. Dean has been recognized for his accomplishments by awards from the National Academy of Neuropsychology, the Journal of School Psychology, and the Clinical Neuropsychology Division of APA. He is a diplomat of the American Board of Professional Psychology. Dr. Dean was the founder and Editor in Chief of the Archives of Clinical Neuropsychology, the Bulletin of the National Academy and the Journal of School Psychology.

Contributions

Dr. Dean research has focused on laterality, cognitive neuropsychology, and neuropsychological tests based in functionality rather than localization. His concerns on the efficacy of traditional neuropsychological assessment have been realized with the growth of radiological scanning techniques such as the MRI and fMRI over the last quarter century. Through his association with Dr. Richard W. Woodcock, Dr. Dean developed the Dean-Woodcock Neuropsychological Assessment System and the Dean-Woodcock Neuropsychological Battery. The latter was published emphasizing functionality in neurological assessment. With its emphasis on the Cattel-Horn-Cantrell Theory of Intelligence (CHC) the Dean-Woodcock Sensory Motor Battery represented a clear departure from the traditional actuarial approaches of neuropsychological assessment. Dr. Dean was both founder and editor for the Achieves of Clinical Neuropsychology and the Bulletin of the National Academy of Neuropsychology.

Current Involvement

Dr. Dean is currently the George and Frances Ball Distinguished Professor of Neuropsychology at Ball State University and Director of the Neuropsychology Laboratory where he has worked since 1984. He continues to teach, publish, and mentor doctoral students and has remained clinically active.

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Razadyne ER®

►Razadyne®

Razadyne®

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Synonyms

Galantamine; Razadyne ER®

Definition

A prescription medication FDA approved for the treatment of mild to moderate Alzheimer's disease.

Description

This medication is an acetylcholinesterase inhibitor available in a tablet, solution, or extended release capsule. This medication does not cure the disease or stop it from getting worse, but may improve thinking ability.

The recommended starting dose for this medication in the immediate release tablet or oral solution is 4 mg twice a day. The recommended dose for the extended release capsule is 8 mg once daily. Dose increases should be done gradually. Maximum recommended daily dose is 24 mg. This medication should only be taken as directed by a doctor.

Some side effects are listed here: bladder pain, painful urination, nausea, vomiting, diarrhea, dizziness, headache, changes in sleeping, and weight loss.

Relevance to Childhood Development

Razadyne® is not FDA approved for use in children. Use is not recommended.

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RCDS

►Reynolds Child Depression Scale

Reaction Formation

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Definition

A Freudian defense mechanism in which an individual expresses a strong outward belief about a particular subject when in fact they are internalizing the opposite belief [2].

Description

Reaction formation was first proposed by Sigmund Freud as one of his Ego Defenses. The definition was further refined by his daughter Ana Freud in 1937. In brief, reaction formation is an unconscious psychological defense mechanism aimed to reduce anxiety about an internalized drive, belief, feeling, or behavior which is manifested by an overt behavior or stance that is the direct opposite [1].

Relevance to Childhood Development

An example, particularly in schools, is that when a child glorifies their mother or father, when in fact they have a strong dislike, resentment, or even hatred toward that parent. Or, a mother who outwardly displays a deep affinity toward her child may inwardly feel that she does not want the child. Therapists who recognize reaction formation in their clients may seek to foster an environment of unconditional positive regard and acceptance while helping the client to acknowledge their feelings and inner conflict and to recognize that such coping mechanisms are unhealthy. The ultimate goal is for the client to abandon this exaggerated form of compensation in favor of socially appropriate alternative behaviors or problem solving skills. Since reaction formation purportedly develops from unconscious thoughts and feelings, therapy is often continued until deeper feelings and emotions can be appropriately addressed [3].

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Reactive Aggression

►Hostile Aggression

Reactive Attachment Disorder

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Synonyms

Disorganized/disoriented attachment; RAD; Reactive attachment disorder of infancy or early childhood

Definition

A disorder characterized by disturbed and inappropriate social interactions across social contexts. Onset must occur before the age of 5 years. Verification of ►pathogenic care must occur before diagnosis can be confirmed.

Description

Reactive ►attachment disorder (RAD) is characterized by disturbed and inappropriate social interactions across social contexts with an onset prior to age of 5. Before a child can be diagnosed with RAD, developmental delay or other disorders must first be ruled out as the cause of the inappropriate social interaction. Additionally, there must be verification of gross pathogenic care, as indicated by at least one of the following: persistent disregard of the child's emotional needs, persistent disregard of the child's physical needs, or repeated changes in the child's primary caregiver that prevents the formation of stable attachment [1]. It is generally presumed that this neglectful and/or abusive care is primarily responsible for the disturbed social interaction in children with RAD. Prevalence is difficult to determine due to the ►comorbid conditions often seen in children with RAD.

Subtypes and Symptoms

Two subtypes of RAD have been identified: inhibited and disinhibited. Individuals with the inhibited subtype do not to initiate social interactions or respond in social situations in ways that are developmentally appropriate [1]. The inhibited subtype may also be referred to as the "emotionally withdrawn" subtype ([2], p. 1209). Children with RAD of this subtype generally do not seek comfort from others in times of distress, and may resist comfort from familiar caregivers. Individuals with the disinhibited subtype exhibit little to no selectivity when choosing attachment figures [1]. The disinhibited subtype may also be referred to as the "indiscriminate" subtype ([2], p. 1210). Children with RAD of this subtype do not discriminate when seeking comfort and may be equally likely to seek physical comfort from a stranger even if their primary caregiver is close by. These children may be described as shallow and attention-seeking [2]. Following common diagnostic guidelines, children must be diagnosed as having one subtype or the other, and cannot be diagnosed as having both; however, some argue that the two subtypes can be simultaneously present [8].

Children with RAD may lack empathy [4], may intentionally harm themselves or others, and may be hypervigilant [7]. Children with RAD have also been observed to exhibit impulsive and self-endangering behaviors [5]. They may generally struggle with emotional and behavioral regulation [6]. Children diagnosed with RAD may have related issues stemming from abuse and neglect that are not part of RAD that also need professional attention. These include unattended medical conditions, as well as trouble with speech or language [2].

Relevance to Childhood Development

There is not a widely-used standard assessment battery designed specifically for children with RAD. Assessment involves direct observation of the child, preferably including observation of the child with their primary caregivers. It is also critical to consider the child's history and past environment [2]. Comprehensive psychoeducational and/or neuropsychological testing is recommended to aid in ►differential diagnosis and determine functional capability. It is recommended that RAD be diagnosed only by a trained mental health professional with expertise in child development and differential diagnosis [3].

Risk factors have been identified for RAD. These include children who have experienced multiple living situations, such as those raised in orphanages or foster care or who have been frequently moved from one caregiver to the next. Another salient risk factor is a history of abuse and/or neglect. It is important to understand that even extreme abuse, neglect, and multiple living situations do not always lead to RAD.

School may be a challenging environment for children with RAD, as inappropriate social interaction and reciprocity extends into this environment and may contribute to behavioral, emotional, and academic challenges [6]. Children with RAD may be rejected by peers [6]. The teacher–student relationship can also be affected by RAD, leading to a variety of problems such as engaging in proximity-seeking behavior with teachers, or seeking help from teachers in inappropriate ways [6]. Teachers familiar with RAD, and who understand emotional and behavioral regulation, will best be able to support students with the disorder [6].

Given the appropriate supportive environment, children with RAD may improve behaviorally and form attachments to caregivers. To promote healthy attachment, caretakers ideally would provide a stable, safe, and predictable environment, and would be sensitive and responsive to the child's needs [3]. Despite an improved environment, indiscriminate social relatedness may continue even after a child has formed selective attachments [1]. Though RAD has not been well researched, it is presumed that without change in environment and care, improvement should not be expected.

Currently, many therapies exist for the treatment of RAD, but most are not evidence based practices, and some

are controversial. Often, both the child and their caregivers are involved in psychotherapeutic treatment, though treatment may involve working with the child or caregiver(s) alone. The scientific community has generally rejected attachment therapy that involves coercion, compression holding, ►rebirthing therapy, or the promotion of regression, as they have not been empirically supported and in some documented cases have caused serious harm and even death to children [2, 3].

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Reactive Attachment Disorder of Infancy or Early Childhood

►Reactive Attachment Disorder

Reading

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Synonyms

Orthographic reading skills

Definition

Reading can be defined as the cognitive process associated with the interpretation of written language.

Description

Reading is a complex learned skill that most people develop without understanding how or why the process works. However, the ability to read is one of the most important abilities needed in order to be successful academically, professionally, and personally [4].

Those who specialize in the study of reading have been unable to come to an agreement on the definition of reading. Some define reading as the ability to sound out strings of letters while others define reading as the process of extracting and constructing meaning from text [7]. Involved in this complex process of constructing meaning are aspects such as word recognition, fluency, comprehension, and motivation. At a minimum then, reading requires knowing the sounds of letters and knowing the meanings of words and groups of words, and being able to put it all together fluently.

The process of learning to read is a relatively long one that begins early in a child's development [5]. A successful reader must learn how to use spoken language and to recognize that spoken language is composed of individual sounds. Along with this develops the knowledge of the names, sounds, shapes, and formations of letters or syllables, and the knowledge that these letters and syllables are what make up written words. Successful readers know the direction in which text is read (note this is dependent on the specific language), recognize words on sight, and can identify novel words using both the rules of written language and the context in which these words are written. Finally, in order to read successfully, a child must learn to do each of the above abilities automatically, freeing up resources to focus on understanding the selection of text.

An individual passes through the following stages while learning to read: the pre-reader and the beginning reader, the emerging reader, the early reader, and the fluent reader.

1. The pre-reader and the beginning reader enjoy looking at books and having books read to them. They learn words by looking at things like picture books, traffic signs, and logos (e.g., restaurant logos), as well as by singing songs and learning rhymes. At this stage beginning readers learn things like where a story begins and ends, and how to use pictures and memory to tell and retell stories.
2. The emerging reader is prepared to be taught about reading, and has learned that text represents a way to

tell a story or to communicate information to others. An emerging reader starts to match written words to words heard spoken aloud, and to notice the relationships between sounds and letters. The child begins to experiment with reading, and will attempt to read aloud when looking at simple texts. At this stage, pictures are beneficial as they allow the child to understand the words being read, and to realize that the written words express a message that is consistent with the pictures displayed in the story.

3. Early readers develop greater confidence in their reading ability and use a variety of methods to identify words. They will be familiar with many words and will be eager to attempt new types of text.
4. The fluent reader reads automatically, and knows many methods for identifying both words and their meanings. The fluent reader can read many different types of text and is able to predict the events in a story. At this stage, the reader is able to relate personal experiences and knowledge to events read about in books.

The majority of children learn the basics of reading by the time they reach the age of seven, although reading proficiency takes many years. Learning to read has its foundation in the language skills that begin to be acquired shortly after birth. For the most part, birth to age three brings the ability to create sounds that imitate tones and rhythms that adults use when they are speaking. In these years, children begin to associate words they hear regularly with their meanings and to react to gestures and facial expressions. They also begin handling objects such as board books in their play and then they gradually move to pretending to read them. They enjoy listening to stories, and naming objects and discussing characters in the stories. Finally, they ask to read or write with adults, and will start paying attention to specific parts of print, such as the first letters of their names [2].

Between the age of three and four, most children continue to enjoy listening to and talking about stories and they are able to identify signs and labels that are familiar to them. They enjoy participating in rhyming games and they begin to identify some letters and to make matches between letters and sounds. Finally, they will utilize letters that they have learned to represent written language, particularly for words that are meaningful to them such as their names [2].

When most children reach the age of five, they develop the ability to sound like they are reading when they are pretending to read. They continue to enjoy being read to and they will attempt to retell simple stories. They make use of descriptive language when explaining things or when asking questions, and they recognize letters and letter-sound matches. At this age, they realize that English text is read from left to right and from top to bottom; and they begin to match words they hear spoken aloud to words they see written on paper or to pictures. Kindergarten children can identify whether words begin or end with the same sounds and recognize some poetry. Moreover, by the age of five most children will attempt to write the alphabet and some frequently used words. This will be followed by an attempt to write stories that contain some readable parts [2].

By the age of six, most children can usually read and retell stories that are familiar to them, and they have learned a number of ways to help them read stories, such as re-reading, asking questions, or using pictures. They can follow simple written instructions. First graders can recognize consonants and vowels. They can identify new words by using letter-sound relationships, parts of words, and their understanding of the remainder of a story. By this age, they have developed the ability to recognize a growing number of words by sight and depend on word families. They also have the ability to sound out words they are trying to spell [2].

By second grade, children can decode an unfamiliar word based on individual letter sounds. They are much better at using contextual cues to identify new words. Their reading is more proficient as they can vary their intonation when reading aloud. In third grade, the reader understands homophones, antonyms and synonyms. Children's reading speed increases and they are better silent readers. Soon after, reading becomes more fluent and automatic. Children who have not acquired basic reading skills by grade three are at risk for future academic and social problems.

There are two main approaches to reading instruction: ▶phonics and ▶whole language. Phonics based approaches emphasize the correspondence of printed letters and words with the sounds of letters and words. Phonics based instruction focuses on ▶decoding and teaches strategies to sound out words. Phonics instruction provides lots of drills and requires lots of practice to sound out words. In contrast, whole language approaches to reading focus on comprehension of written text. Reading and writing opportunities are provided throughout the school day through multiple experiences that emphasize meaning. Whole language learning emphasizes literacy throughout the curriculum and the opportunity to write is incorporated with reading.

Contrary to popular opinion, current research does not support one form of instruction over the other. Most

children learn best with a balanced approach that begins with phonics instruction and then includes whole language approaches to literacy.

Since reading is an effortful activity that children can choose to engage in or not to engage in, it also requires motivation. Therefore, in addition to learning the skills involved in reading, children must also develop and maintain their motivation to read. Children must learn to appreciate the pleasures of reading, and they must learn that reading is a social act that they can share with others, and that it provides the opportunity to explore their interests.

Most children begin learning to read with a great deal of interest and a sense of optimism. However, children who experience difficulty learning to read may quickly develop a sense that they are a poor reader, and their motivation for reading gradually declines [1]. Without the motivation to read, children may decide not to participate in activities involving reading, and consequently, they get little practice and they may fall further and further behind [3]. Since reading plays a central role in so many of the tasks we perform each day, children who do not read well may experience difficulties in other areas as well. Children with reading disabilities require intense phonics instruction that emphasizes letter-sound concordances as a starting point.

Relevance to Childhood Development

In summary, the ability to read does not develop without careful planning and instruction [6], and the proper motivation. Good reading ability is of life-long value. The process of learning to read begins long before children are able to speak and continues with most children learning the necessary skills by the age of seven. From that point on, most children will continue to refine their skills until they become efficient and fluent readers.

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Reading Aloud

►Oral Reading

Reading Development

►Emergent Literacy
►Literacy Development

Reading Disability

►Developmental Dyslexia
►Dyslexia
►Reading Disorders

Reading Disorders

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Synonyms

Developmental dyslexia; Dyslexia; Reading disability

Definition

A reading disorder is characterized primarily by deficit performance in reading, not attributable to sensory deficits or developmental delays, that falls significantly below expectations for an individual's chronological age and measured intelligence in the context of appropriate reading instruction and socio-economic opportunities and has a significant negative impact on academic achievement or daily living activities.

Description

According to the National Assessment of Educational Progress statistics, approximately 34% of fourth grade students and 27% of eighth grade students nationwide fell below the basic level for reading proficiency in 2007 [3]. Reading disorders are the most pervasive form of learning disabilities in the United States, affecting approximately 80% of all children identified as learning disabled [6]. Reading problems are equally pervasive among male and female students, and tend to persist without effective intervention. Problems not identified prior to grade 3 or 4 are difficult to remediate, and have a negative impact on learning across academic content areas. Evidence suggests that reading disorders are more likely to occur in children whose parents have difficulties with reading, children with limited English proficiencies, hearing or language impairments, and/or children from low socioeconomic backgrounds who may have limited opportunities for exposure to rich language and literacy activities [6]. Shaywitz and Shaywitz [5] reported findings from functional neuroimaging technology studies of differences in brain activity between proficient and struggling readers that demonstrate neural system structural changes in the brain in response to effective interventions. This implies that biological and environmental factors work together to influence reading development, and suggests effective interventions can prevent or remediate reading problems.

There are three broad areas of reading disorders, word-level, fluency, and comprehension [1, 2]. Word-level disabilities involve difficulties in word recognition, decoding, phonological processing, and alphabetic principle. Fluency disability is manifested in difficulties in quickly and accurately deciphering print. A comprehension disability involves difficulties in the ability to understand or learn from the text. Problems with word-level reading skills and fluency often lead to problems with comprehension. Children who have difficulty with word-level skills use cognitive resources, such as attention and memory, to decipher words. Once word-level skills become proficient, the child can begin to read fluently, and cognitive resources become available for use in extracting meaning. In other words, children must be able to quickly and accurately decipher words so that they can devote their attention and memory to understanding what they are reading.

Word-Level Disabilities

Word-level problems in reading are synonymous with dyslexia [2], and involve difficulties with an awareness of the phonological structure of language and its relationship to print. The English language contains up to 44 individual phonemes [4]. For example, the word "that" contains three phonemes /th//a//t/. In oral speech, the phonemes overlap in a process called co-articulation to produce one audible sound, "that." Phonemic awareness involves recognition of the individual sounds that comprise words. It is part of a broader process, known as phonological awareness, which includes the ability to identify and manipulate the components of speech such as (a) identifying beginning, middle, and ending sounds; (b) blending individual sounds to form whole words; (c) isolating (segmenting) individual sounds; and (d) deleting, substituting and adding sounds to form new words.

Children with word-level problems in reading may exhibit difficulty naming letters, associating letters to sounds, understanding the difference between sounds in words, or blending sounds into words. They may confuse similar-looking letters, numbers, or words, or they may reverse letter orders in words. They may have poor memory for new vocabulary words and difficulty with spelling. Children with problems at the phonemic level have difficulty recognizing the syllabic structure of words, and must rely on rote memorization skills [6].

Phonological awareness begins to emerge during the preschool years, typically through natural exposure to language, word play, and early exposure to print and print concepts. Activities such as listening to and repeating nursery rhymes, chants, songs, and other alliterations, along with exposure to environmental print (e.g., fast-food restaurant logos, street signs, etc.), and multiple opportunities for interactions with various forms of literature provide opportunities for the development of phonological awareness. Children who have multiple opportunities to interact with language and print in their early years typically develop better reading proficiency than children who are deprived of such experiences [6, 7].

Once children have a developed phonological awareness, they can begin to apply their knowledge of sounds and words to print. The association of letter-sound relationships to print is known as alphabetic principle, and usually occurs sometime during first grade [4]. It differs from phonological awareness in its relationship to graphemes, which are the alphabetic symbols used to represent speech sounds. For instance, the association between the size and shape of the symbol "A" and the sound /ă/ or /ā/ refers to alphabetic principle, whereas a single phoneme, such as the /th/ sound, can be represented by more than one grapheme. Alphabetic principle involves recognition of the size and shape of print, and its relationship to spelling patterns. Children who struggle with alphabetic principle have difficulty identifying letters and/or their

corresponding sounds, and with recognizing and spelling familiar words.

Unlike phonological awareness, which develops largely from natural interactions with language and speech, alphabetic principle requires explicit instruction [1]. Children who do not grasp the alphabetic principle have difficulty decoding, or sounding out, words in print. Poor instruction in alphabetic principle may have lasting effects on overall reading achievement [6]. The National Reading Panel [4] advises that teaching phonological awareness should include explicit, systematic, multi-skilled approaches that include instruction in the alphabetic principle to achieve maximum results. Activities that involve converting letters into sounds, then blending and segmenting them to form recognizable words, identifying and categorizing phonemes in printed words, and manipulating subparts of words and phonemes to form new words are some of the suggested approaches to teaching phonological awareness and alphabetic principle. This type of instruction is generally more effective when delivered before first grade. It is unclear whether explicit phonics instruction is effective for older, struggling readers.

Fluency Disabilities

Fluent reading involves the ability to read text quickly, accurately, and with proper phrasing and prosody. It is dependent upon the ability to quickly and accurately recognize printed words. It is distinguished from automatic reading by oral prosody. Some children can read automatically, but lack appropriate expression when reading aloud; thus, not all children with proficient word recognition become fluent readers [1, 2, 4]. Other cognitive processes, such as processing speed, executive functions, and lexical memory also play significant roles.

Fluency is an essential component of reading, since it frees up cognitive resources for comprehension. This becomes important as older students progress from learning to read to reading to learn. As students progress through school, learning becomes increasingly dependent upon meaning obtained from texts. Students who are still struggling with decoding will not have access to as much material as their proficient peers. They will not be able to read as much material in the amount of time available, and, without intervention, will lag farther behind in learning as the material becomes increasingly difficult.

Children with fluency disabilities read slowly and hesitantly. Their oral reading sounds unnatural and laborious. They may read in a monotone voice, or pause at inappropriate places within connected text. Although fluent readers may exhibit hesitant, labored reading with difficult or unfamiliar texts, non-fluent readers demonstrate problems even with familiar texts at appropriate levels of difficulty.

Research demonstrates that the use of guided, repeated oral reading practice improves not only reading fluency, but overall reading achievement as well [4]. Providing children with multiple opportunities to practice reading familiar text (repeated reading) enhances the automaticity that frees up resources for comprehension, while corrective feedback improves accuracy and prosody.

Comprehension Disabilities

Reading comprehension involves a combination of word-level skills, fluency, and metacognitive processes that help the reader understand, remember, infer, and communicate information to others about the text. Reading is both an active and interactive process. It is influenced by the reader's intelligence, physical and emotional states, the context of reading (e.g., physical location and purpose), and constraints imposed on the reader [6]. The reader is an active participant, applying prior knowledge and experience to construct meaning extracted from the text. The knowledge acquired from reading further enhances comprehension and learning. When the process of reading is difficult and frustrating, it decreases the motivation to read and reduces the number of opportunities to learn.

The role of vocabulary in reading comprehension is significant. A well-developed vocabulary provides the basis for understanding when decoding printed words. Identifying unfamiliar words in print is easier when the unfamiliar word can be associated with a word that already exists in the reader's oral vocabulary. The effect is bi-directional because poor comprehension can result in limited exposure to new words and have a negative impact on continued vocabulary development [6]. Vocabulary becomes increasingly more important in the older reader, when the focus of reading shifts toward texts of a more technical nature. Technical manuals, research reports, and other non-fictional materials gradually replace fictional literature as primary reading sources as students' learning becomes increasingly complex and content-focused. The vocabulary used in these types of texts is often specific to the content, and knowing the technical terms becomes essential for understanding the material. Pre-teaching vocabulary words, and repeated drill practices are effective interventions for building a student's vocabulary skills; however, the National Reading Panel [4] recommends using a variety of instructional methods rather than just one, and exposure to rich contexts for vocabulary learning.

In addition to vocabulary, metacognitive strategies help students monitor and regulate their own

comprehension. Students who struggle with metacognitive strategies have difficulty summarizing, clarifying, and making inferences or predictions based on what they read. They may not understand the relationships between main points and supporting ideas, or appreciate the purpose or organization of the text.

The National Reading Panel [4] has identified seven instructional strategies with empirical support for promoting reading comprehension. Memory strategies, such as mental imagery and mnemonics help children build mental representations that facilitate the ability recall information for later use. Pre- and post-reading activities such as questioning, elaboration, and classroom discussions are useful for assessing, activating, and building background knowledge that forms the foundation for understanding textual material. Comprehension monitoring strategies, such as error detection, recall, and question answering, can help students identify material that requires additional support or strategies for comprehension to occur. Cooperative learning, peer tutoring, facilitates discussion that can provide corrective feedback in a social environment that has the potential to increase the student's sense of control and motivation to read. Graphic organizers help with retention and organization of reading material to enhance understanding. Instruction on the story structure organization aids with questioning, inferring, and prediction. Summarizing improves retention of the material, assists with connecting the main idea with relevant, supporting ideas, and facilitates generalization of the text information.

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Reading Impairment

►Aphasia

Reading Skills

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Synonyms

Comprehension; Decoding; Word recognition

Definition

Two major skills are required for fluent reading: one deals with word recognition or ►decoding, and the other deals with reading for meaning or *comprehension* [6].

Description

The process of reading requires that a number of skills be mastered for proficiency including decoding and *comprehension*. In order to become a fluent and efficient reader, a child must first acquire automatized word-level analysis skills. This requires a substantial amount of reading practice. Once the child has mastered word-level skills, the focus shifts to reading comprehension [6]. Although decoding and comprehension are the two main aspects of reading, several sub-skills have been identified as essential for reading development [10].

The majority of current theories of reading development emphasize the primary importance of phonological skills in learning to read. At a basic level, children who are learning to read in an alphabetic orthography must first establish a correspondence between the letters that make up printed words and the ►phonemes that make up spoken words [8]. Once letters have become linked to individual sounds or phonemes, they become linked to spoken language and thus have been decoded. The developing reader must first recognize that spoken words are made up of phonemes, that is, the child acquires ►phonemic awareness. The next step is to recognize that phonemes are linked to written symbols or letters and when that happens decoding has occurred and the child has taken the first steps to reading.

Learning to read then requires the acquisition of a number of skills. One of the first skills to develop is the ability to name each letter. This is followed by the ability to identify the sound each letter makes.

For vowels, this includes understanding the long and short pronunciations and for consonants, recognizing that there sometimes may be two sound outcomes. Next, children must develop the alphabetic principle, which is the knowledge that written letters and letter combinations represent the sounds in oral language and that these sounds are used to form words [2, 5, 10]. Thus, this letter-sound knowledge is critical for word identification skills [2]. According to Reading and Van Deuren [10], most children are exposed to print at an early age, therefore, many begin kindergarten with knowledge of the alphabetic principle.

Phonemic awareness is another important reading skill. Often, in the literature, the terms ▶phonological awareness and phonemic awareness are used interchangeably, however they do not represent the same thing [1]. Phonological awareness is a more general term and it refers to a child's ability to identify and analyze the sound structure of words and to understand that language can be broken down into smaller units [4]. It is the knowledge that words consist of syllables, onsets and rimes, and phonemes [9]. It has been found to be one of the most powerful factors involved in reading development [4]. Phonemic awareness is a more specific term and has the strongest relationship with later reading. Phonemic awareness is an awareness of the individual phonemes or more specifically, the ability to hear, detect, think about, and manipulate the individual sounds in spoken words [2]. It involves auditory awareness [2, 10], however, it is not necessary for understanding spoken language. Humans have been created to hear oral language and language is heard seamlessly, that is, whole words are heard not individual sounds. The ability to manipulate the individual sounds of a word however is critical for reading and writing success and for second language learning.

Phonemic awareness can be measured using sound comparison skills, that is, identifying and generating words which begin with the same first or last sound. It also includes the ability to segment phonemes. This includes being able to break a word into individual phonemes. Phonemic awareness also includes phoneme blending or the ability to put phonemes together to produce words.

It is well accepted that there is much more to learning to read than simply decoding [8]. Decoding is the ability to correctly pronounce written words by using the knowledge of letter-sound relationships [9], or more simply put, it is the sounding out of words [10]. This understanding allows children to recognize familiar words quickly and to figure out how to pronounce new words [9]. Once a child can decode individual words, the development of fluent and automatic reading skills is the next important goal. While there is a lack of consensus on a single definition of reading fluency, most would agree that it involves the ability to read quickly and accurately. Decoding plays a large role in reading and reading fluency. Good readers do not have to reread words; they efficiently process every word and every letter within a word.

Therefore, once readers understand and become fluent in the mechanics of reading, they can turn their focus to understanding what they are reading. This is known as *comprehension*. In order to understand a selection of text, students must first learn to read for factual information. Then, they must learn to look for and locate the main ideas in a text, as well as to compare and contrast these ideas. Finally, they must develop the ability to analyze and synthesize the information in order to draw conclusions and to make reasonable inferences. This involves integrating existing knowledge with the new information presented in the text being read [7].

The role of vocabulary development in the acquisition of reading skills has not received the same attention as decoding and comprehension strategies, however, vocabulary knowledge is closely linked to comprehension. In order to be a skilled reader, it is important to know the meanings of words, as well as demonstrate the ability to infer and learn the meaning of new words [7], because a well-developed vocabulary represents a critical link between decoding and comprehension [3]. The sources of vocabulary knowledge include home experience, general mental and verbal ability, and education [4]. If a reader has an insufficient knowledge of important words and concepts or if they are not able to determine the meanings of words, they will have a harder time understanding what they are reading [7]. In fact, contrary to popular opinion, teaching poor readers to guess the meaning of unfamiliar words using contextual cues is counterproductive.

When a child exhibits accurate, but very slow decoding, it may not be sufficient to support comprehension. In order to adequately comprehend what has been read, decoded words must be present simultaneously in working memory, so that the relations among them can be processed. If decoding is slow, then important information will have perished by the time later information is decoded. Furthermore, if decoding is effortful, meaning that conscious thought must be devoted to it, then fewer working memory resources will be available for comprehension. Many children with reading disabilities have stronger comprehension skills than decoding skills. They can infer the meaning of what they are reading because their higher order cognitive processes are not impaired, but reading of individual words is laborious. This is one

reason why poor readers benefit from intense instruction in letter-sound concordances.

Good readers share a number of characteristics. They try to interpret the meanings of new words as they read. They make predictions and test these predictions as they continue reading, revising as necessary. They monitor their understanding of what they are reading and adjust as needed, rereading and reinterpreting based on what they have read and what they know. Good readers have different strategies for reading different kinds of materials; this influences whether passages should be reread or skimmed, which parts deserve more attention, etc. Reading is an active process and improves with practice; for example, vocabulary improves with reading and improved vocabulary aids reading.

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Reading Skills Acquisition

►Decoding Skills

Reading/Writing Proficiency

►Literacy

Reality Principle

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Synonyms

Reality testing; Secondary process

Definition

A Freudian concept used to describe one of the fundamental ways in which the psyche develops from infantile, instinctual functioning based on attaining pleasure, the pleasure principle, to a more mature and modulated functioning based on the demands of reality.

Description

The reality principle develops secondarily in relation to the pleasure principle. If the pleasure principle represents the psyche's orientation to attaining pleasure, then the reality principle can be said to represent the psyche's adjustment to the demands of reality, whether or not these demands lead to pleasure or pleasurable experiences. In this sense, the reality principle is the infant's movement towards maturation in that maturity is constituted by the ability to accept and adapt to reality, both frustrating and rewarding aspects of reality. The infant is increasingly able to observe and to accept that reality is not always gratifying or what the infant desires. For example, the parent of reality has both good and bad days, and will be a disappointment to the infant from time to time. The perfect parent, for which the infant might wish, does not exist in reality. The infant's ability to accept and even to love the real parent is the manifestation of the reality principle's influence within the functioning of the mind.

Relevance to Childhood Development

The reality principle as a concept has been relevant to childhood development especially for psychoanalytically or psychodynamically oriented investigators and those working directly with children. It is a concept that can be useful in describing the normal conflict during early childhood in moving from a self-centered, infantile state of existence to a more tolerant and realistic position in relation to primary caregivers. The reality principle is said by psychoanalytic theory to bring with it the ability on the child's part to delay gratification and to tolerate increasing amounts of frustration brought on by normal reality constraints and demands. The reality principle helps the child

take into account the world and experience outside of, or other than him/herself.

As a concept "reality principle" is useful for formulating aspects of inner experience, much of which is outside of everyday, conscious awareness, and inaccessible to infants and small children.

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Reality Testing

►Reality Principle

Reality Therapy

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Synonyms

Choice Theory; Counseling; Counseling method; Psychotherapy

Definition

A counseling technique where the client is encouraged to focus on the here and now rather than on the past, complaints or symptoms in order to obtain better control over his or her life.

Description

Reality therapy was developed by *Dr. William Glasser* in 1965 and is based on Choice Theory, once known as Control Theory [2, 4–9, 11]. *Choice Theory* basically theorizes that all behavior is purposeful and is meant to match the pictures we have formulated in our minds of what we want to reality in order to fulfill the five basic human needs: love and belonging, power, fun, freedom and self preservation [4, 6, 7].

Basic Assumptions

The basic assumptions of Reality therapy are that underlying problem is based on relationships that are disconnected or unsatisfactory as well as how the person perceives and feels about him or herself, people are in control of their *behaviors* thus are responsible for the behaviors that they choose to engage in while trying to meet their wants and needs, people have the ability to change, there is no need for the person to wait on others or remain a victim in order to make changes that will lead to a more effective life [4–9, 12]. This is not a sign of mental illness, rather, a purposeful method to get what one wants [6, 7]. Thus, if a person is depressed it is due to the person is choosing to depress rather than evaluate and consider more effective alternative behaviors to get what he or she wants [5, 7, 12].

Counseling Process

The focus or goal of the *counseling* process is for the *therapist* or counselor to assist the client to reconnect with others in a more effective way by acknowledging that no matter what has happened in the past, he or she has control over his or her behaviors and he or she has choices [5–7, 9, 12]. This reconnection is done through the process of the therapist creating a warm, trustful atmosphere for the client, helping the client to understand the concept of total behavior which involves thoughts, feelings, physiology and behaviors or actions, remaining non-judgmental, being supportive while challenging the client to make changes in a non-criticizing manner, helping the client to see and evaluate ineffective behavioral choices, focus on the present and specifically what the client can do and avoid discussing symptoms, complaints, blaming (*transference*) and excuses [5–9]. During the process the therapist will help the client to evaluate and consider five questions that drive the process: what do you want, what are you doing to get what you want, is it working, if not, what are you willing to do and to make a plan that realistically can help him or her to obtain what it is that he or she is wanting [2, 5, 12]. The results include increased self esteem and concept, increased inner strength, improved relationships with others and a plan to live a more effective life [1, 3, 6, 10–12].

Contributions

Reality therapy has contributed to the counseling profession by providing a short term counseling approach that can be utilized with a wide variety of clientele [7].

Limitations

Reality therapy as with all counseling methods has its limitations. These have been identified as limited emphasis on the unconsciousness, avoids issue of transference, can be too confrontational, limited focus on the effects of early childhood trauma, limited focus on feelings, does not take into account role of the past regarding personality, the role of dreams in the therapeutic process, role of social or cultural influences and the role of discrimination as a barrier in a person's life [7].

Relevance to Childhood Development

The technique can be used with children to provide tools for the individual to use in order to cope with problems as well as gain control over his or her life and grow personally [2, 5, 6]. For instance, parents can utilize Reality Therapy techniques in their parenting in order to help the child to learn how to gain control over their lives [4]. This in turn will help to increase the child's self esteem and sense of self worth by being able to successfully meet his/her basic needs of love/belonging, power, fun, freedom and self preservation through effective means [4, 6, 7, 12]. Teachers can also use Reality Therapy techniques in their classrooms to not only help the child to continue to learn to control his/her life and meet his/her basic needs, but also to increase the child's learning of a subject by making the learning process fun thus appealing to the child's need for fun [4]. School guidance counselors can utilize Reality Therapy techniques to help a child with such issues as building positive relationships with peers and teachers, address homework issues, and improve communication with others [12].

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Reason

▶Motivation

Reasoning

▶Critical Thinking

Reasoning-Oriented Parenting

▶Inductive Parenting

Receptive Language

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Definition

Receptive language is the ability to accurately comprehend what is said, written, or signed by others.

Description

Both receptive and expressive language are important to the understanding of a child's overall language skills [3]. While expressive language refers to the child's ability to produce language, receptive language refers to the child's ability to comprehend language. Typically, children with

severe reading and reading comprehension problems show poor receptive language skills [4], and problems with receptive language also lead to problems with expressive language [3]. In addition to studying the comprehension of the content of language (e.g., words), it is also important to study the child's ability to comprehend other aspects of language, such as syntax and pronouns [3].

Biologically, researchers have identified the location of the brain that is responsible for receptive language processing, in the area between the temporal and parietal cortex very near the angular gyrus [4]. As expected the number of understandable words increases with age; however the development of such abilities is very unpredictable and many factors (e.g., genetics, parent's work with the child on language development, and the overall health of the child) play a role in the child's abilities [3].

There are various ways to assess receptive language abilities. For example, picture-naming abilities have some connection to receptive vocabulary comprehension, because the picture may be a visual representation of a word the child knows [5]. However, these tests do not always provide accurate measures of word identification abilities in children [5] because the picture may be an object or situation that the child has not yet encountered, therefore, he/she is unable to name it. Similarly, in many cases when the child does not understand a word it may simply be due to the child's lack of exposure to the word, not a serious developmental problem. Clinicians can retest the child using other words or pictures to test the child's abilities across multiple stimuli [2].

In a meta-analysis of receptive language interventions, Law et al. [1] found that the duration and administrator of the intervention play significant roles in outcomes. It was found that when parents administered the intervention for more than 8 weeks, children had the most developmental success. However, this study was unable to determine the intensity of the interventions given because the administration varied too much from child to child, meaning that there is a need for more structured research [1].

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Receptive Language Disorders

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Synonyms

Communication disorders; Comprehension deficit; Delayed language; Delayed speech

Definition

A language disorder where there is difficulty in understanding what is being said and/or written. The individual also experiences difficulty in retaining, processing and attending to spoken language.

Description

Differing from speech disorders, language disorders such as receptive language disorders include problems with the understanding and use of language to include written, spoken and/or simple systems such as sign language [1]. Referred to as delayed speech or language [5], receptive language disorder is described as being a type of learning disability where the individual struggles with comprehending what another is saying to him or her [4, 6]. The individual also has difficulty with retention of and attending to what is being said to him or her [4, 9]. Receptive language disorders include such disorders as Comprehension Deficit, Aphasia, and Central Auditory Processing Disorders (CAPD) and can co-occur with expressive language disorder [1, 5, 10]. Several language processing centers of the brain are involved in receptive language disorder [6]. According to the classical model that became popular among physicians during the late nineteenth century, the Wernicke's area was identified as being the area responsible for language comprehension [2]. However, recent research has found that a small number of left temporoparietal regions located outside of Wernicke's area as well as the left frontal lobe are the primary locations of language comprehension [2].

Signs and Symptoms

Although each individual will differ in the signs and symptoms, the basic signs and symptoms of receptive language disorder include: presenting as though he or she is not listening to what is being said, repeating back or parroting words or phrases (*Echolalia*), difficulty with following verbal directions, language skills are not age level, repeats a question that is asked first before answering, high activity and not attending to what is being said to him or her, responses to "wh" questions tend to be off or inappropriate along with difficulty answering yes/no and either/or questions, using phrases and sentences that are memorized and unintelligible speech or jargon [5, 7, 10]. Other problem areas that occur with receptive language disorder include *pragmatics* (function of language i.e., joke vs. serious statement), *phonemic awareness* (how language is formed i.e., distinguishing the "f" sound from the "th" sound), *semantics* (meaning of words) *and syntax* (meaning of sentences) [1, 7].

Causes

In most cases, the cause of receptive language disorder is unknown [1, 4, 10]. However, there are cases where the cause of the receptive language disorder is due to a physiological or medical reason (i.e., stroke, brain injury, exposure to toxins during pregnancy, tumor, disease), genetic factors, *congenital syndromes* (i.e., *Down Syndrome, Fragile X Syndrome*), hearing loss, or a developmental disorder (i.e., *Autism*) [1, 3, 5, 10]. It has also been theorized that such factors as how much exposure one has to language and one's overall cognitive and developmental abilities play a role [10].

Diagnosis

The methods used to diagnose receptive language disorder include: a hearing test, vision or eye examination, observing the individual interacting with others, assessing for cognitive problems by a neuropsychologist and comprehension testing [10].

Treatment

Treatment is determined by several factors. These factors include individual's preference and expectations regarding therapies, the how severe the disorder is (i.e., prognosis), if the individual knows that a problem exists and the individual's age [1, 3]. The types of treatment and intervention available include one on one speech/language therapy, group speech/language therapy, mental health intervention to address behavioral issues that stem from frustration, special education classes and educational support to help the child integrate from one grade level to the next [10]. It should be noted that the prognosis for a child with receptive language disorder is not as good as that of a child with expressive language disorder [4, 7].

Relevance to Childhood Development

It is stressed that it is very important that before one can learn how to talk, one must be able to attend to and understand what is being said to him or her [8, 10]. It is estimated that between 3 and 5% of children have a receptive language disorder, expressive language disorder or a mixture of both [10]. It is further estimated that about 7% school age children are found to present with notable language deficiencies [1, 4]. It is noted that being able to attend to and understand language as well as express one's self is the key to success academically as well as socially [1, 4, 8]. Academically, a child with receptive language disorder will struggle with such tasks as learning to read, understanding and attending to directions being given by the teacher, and taking a test thus resulting in not performing academically at grade level [1, 4, 8]. It can further result in the teacher misperceiving the child's capabilities due to the child is unable to effectively express him or herself [6, 7]. Socially, a child with receptive language disorder will experience difficulty with being able to communicate with peers and teachers and making good decisions which can result in the child not liking school thus engaging in avoidant behaviors [1, 4, 7]. These deficits often carry over into adulthood [7].

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Receptive Lexicon

►Receptive Vocabulary

Receptive Vocabulary

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Synonyms

Receptive lexicon

Definition

Receptive vocabulary (vocabulary refers to all the words in a person's language repertoire) refers to words that a person can comprehend and respond to, even if the person cannot produce those words.

Description

Receptive vocabulary refers to all the words that can be understood by a person, including spoken, written, or manually signed words. In contrast, expressive vocabulary refers to words that a person can express or produce, for example, by speaking or writing. In general, receptive vocabulary appears to develop before expressive vocabulary over the course of early language development, and receptive vocabulary is generally larger than expressive vocabulary [3]. However, language development throughout childhood is often more complex, with expressive vocabulary development sometimes exceeding receptive vocabulary and vice versa [3]. For example, a child may produce a word with imperfect understanding of its meaning and later learn through experience the correct definition and usage. Thus, it is likely that both types of vocabulary development occur together and that the development of one is dependent on the development of the other [3].

Receptive vocabulary begins to develop when an infant learns to discriminate speech sounds, and, as children mature, they begin to decode and respond to words based on contextual cues [3]. By approximately 7–12 months of age, the development of receptive vocabulary becomes evident when an infant begins to respond to simple requests and shows signs of recognizing a few words [1, 3]. Children between 1–2 years old begin to show signs of a more advanced receptive vocabulary through activities such as pointing to objects when they are named by another person [1, 3]. Between the ages of 2–3 years, children's receptive vocabulary increases as overall language abilities develop; at this stage, children are able to respond to more complex requests and will attend to longer adult utterances, including stories [1]. After age 5, the child's receptive vocabulary continues to grow as language continues to develop; by age 6, typical children will have a receptive vocabulary of 20,000–24,000 words while their expressive vocabulary will consist of only about 2,600 words. By age 12, typical children on average will have a receptive vocabulary of about 50,000 words [3].

Relevance to Childhood Development

The acquisition of receptive vocabulary in childhood is essential for communicative and social development. Understanding the development of receptive vocabulary can help parents and professionals to develop educational and play activities that are appropriate for children in various age groups. Knowledge of developmental milestones (a developmental milestone is a behavior or physical sign that indicates the progress in a child's maturation [2]) related to receptive vocabulary and receptive language in general can be helpful for identifying language delays and disorders affecting receptive vocabulary development and for understanding various treatments for language delays and disorders.

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Recessive Gene

►Recessive Trait

Recessive Trait

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Synonyms

Recessive gene

Definition

The trait of a dichotomous pair that is not expressed in the phenotype of heterozygous individuals [3]. The weaker of a pair of alleles in heterozygous combination [2]. The recessive gene is the second gene that has no effect [1].

Description

A recessive trait is the weak, unexpressed trait of a dichotomous pair of alleles (dominant-recessive) that has no effect in the phenotype of heterozygous individuals. An example would be a child who has the dominant or expressed trait for curly hair combined with the weak, unexpressed, recessive trait for straight hair and thus would be a child with curly hair [2]. However, if two recessive genes for a particular trait are inherited by a child, such as albinism, the child will be albino [2]. Recessive traits have a definite impact on child development such that children can inherit recessive characteristics ranging from red hair or a straight nose to serious conditions such as hemophilia, color blindness, or congenital deafness.

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Reciprocal Peer Tutoring

►Peer Tutoring

Recognition

►Recognition Memory

Recognition Memory

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Synonyms

Cued memory; Recognition

Definition

Recognition memory is the correct identification of verbal or non-verbal stimuli that have been presented previously.

Description

Recognition memory is often investigated by presenting a subject with lists of words or pictures of items to remember. After various periods of delay, subjects are then presented with a mixture of items that have been present and those that have not. Subjects must identify items presented (targets) and those that were not (foils) [5]. This task is not as difficult as "free recall," in which the subject must recall without a cue. Researchers and clinicians often test both recognition and recall memory, with recall tests presented first (e.g., "please tell me the words that were presented") and a recognition assessment presented following the recall assessment. This approach is useful in that much greater performance in recognition than recall suggests problems in retrieval of information, rather than encoding or input into memory. All subjects do better on tests of recognition memory then recall. The important feature is the difference between the two. Additionally, recognition memory has been considered an important area of study within the field of psychology because it is generally viewed by researchers to be a simple memory task, easily measured, rather than complex like many other forms of memory: serial recall, pair-associate recall, or free recall [1]. Memory is a complex process, and patients said to have a memory disorder may show impairment in any one of a number of factors. Recognition memory does not necessarily require the production of specific information from memory but rather a matching procedure [9].

Much of the research in the area of recognition memory focuses on whether or not recognition is a singular process or the result of multiple factors. Specifically, some in the literature argue for a single-process model of recognition, which is based on the idea of familiarity. Others argue for a multi or dual-process model of recognition, which have focused not only on familiarity but the process

in which we develop and join episodic experiences. Each view is not without its detractors. For example, while many argue that the single-process model of recognition memory is simpler [3] there are others who argue that a single-process model ignores the latency of recognition memory [7]. Dual-process models have been problematic for many researchers due to the models' inability to distinguish between sensitivity and bias [10]. Still other researchers are proponents of the dual-process model because it accounts for a more dynamic process within the brain [2].

Single Process Models

The single-process signal-detection model provides a simple measure of recognition, but it comes up short in its ability to account for the accuracy and the time required for confidence ratings. This is not a major problem for many researchers, as investigations of recognition are interested in accuracy and not confidence or judgments concerning recognition [8].

Dual Process Models

Early dual-process models such as that of Pavio suggested information is encoded in a dual fashion (verbal and nonverbal). By nature a dual processing model assumes more complex encoding than single process counterparts, recognition is performed in two ways: familiarity or recollection, as compared to performance of the individual in recognizing cues. Researchers have therefore, been extremely interested in measuring the relative contributions of recollection and familiarity [4].

Due to the inherently more complex nature of dual-process models there are several competing models within the field on how recognition memory develops. Some models assume that recognition is based on a continuous random variable (familiarity) and a discrete random variable based on threshold principals (or a tipping point in which recognition becomes apparent) [6].

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Record Judgment of Qualitative Variables

▶Rating Scales

Redl, Fritz

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Life Dates

1902–1988

Educational Information

Dr. Redl received his Ph.D. in education from the University of Vienna in 1925. During the decade that followed he completed training in psychoanalysis at the Vienna Psychoanalytic Institute. This dual focus on the education and socialization of children, and on psychoanalytic models of understanding personality development and of the treatment of children, typified his work throughout his career.

Accomplishments

Dr. Redl worked as a teacher in his native Vienna and in 1936 traveled to the United States for what was originally supposed to be a temporary applied research assignment. His stay in the United States became permanent due to the ascendancy of the Nazis in German-annexed Austria.

Dr. Redl soon became a professor at the University of Michigan, and moved in 1941 to the School of Social Work at Wayne State University. It was during his 12 year stay at Wayne State that his most important and enduring work on the psychology of delinquency was conducted.

In his academic career his work was rarely limited to the classroom. Rather, he sought, and succeeded in applying and testing his psychoanalytically informed ideas in camps, schools and residential settings. In 1953 he moved to the National Institute of Mental Health as the Chief of the Children's Research Branch, where he continued his investigations into the causes and treatment of aggressive and anti-social behavior in children and adolescents. He also was a co-founder and president of the American Orthopsychiatric Association, an interdisciplinary society for the mental health professions.

Contributions

Dr. Redl is best known for his practical and theoretical work with impulsive and aggressive children, through which he emerged as a pioneer in the development of group, residential and *milieu therapies* for juvenile delinquents, conduct disorders and other forms of externalizing psychopathologies of childhood and adolescence.

Dr. Redl's most influential published works, written with his colleague David Wineman, are the volumes *Children Who Hate* and *Controls From Within*. In these books, the authors described their work at Pioneer House, a residential treatment center for pre-adolescent boys (ages 8–11) who were referred because of aggressive and anti-social behavior. While such programs had been established previously, Pioneer House was unique at its inception in 1946 because of the theoretical framework that informed and guided the diagnostic and therapeutic efforts of its staff. Specifically, Redl and Wineman introduced concepts from psychoanalytic ego psychology into the study and treatment of juvenile delinquency and anti-social behavior. Their work at Pioneer House was understood to be a clinical experiment in which they and their staff attempted, via selective environmental interventions and interpersonal interactions, to promote the growth and remediation of those ego functions that were lacking or deviant in their young clients.

Dr. Redl's work after the close of Pioneer House in 1948 was a continuation and elaboration of these concerns. He was a leading advocate for the psychological and social needs of children, an influential researcher whose integration of psychoanalytic ego psychology and milieu therapy guided the work of countless programs, and a much sought-after teacher and lecturer. He also is known for the development of the Life-Space Interview, a method for therapeutic intervention with children and adolescents which is employed during and after problematic behaviors are displayed in the patients' interactions with peers and adults.

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Reference Group Orientation

▶Identity
▶Critical Thinking

Reflective Technique of Mirroring What Is Spoken

▶Active Listening

Refugee

▶Immigrant Children

Regional Cerebral Blood Flow (CBF, RCBF)

▶Cerebral Blood Flow

Regression

▶Acquired Autism

Regression Analysis

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Definition

A statistical technique based on the general linear model which uses one or more variables to predict an outcome.

Description

Regression analysis uses a model that predicts values of a dependent variable (outcome) from one or more independent variables (predictors). Regression is a commonly used statistical approach, and encompasses both simple and multiple regression approaches.

Simple Regression [1]

Simple regression examines the relationship between one predictor variable and one outcome variable. It can be represented with the following equation:

$$Y = A + BX + e$$

In this equation, Y (outcome) is the sum of a weighted value (B) of X (predictor) plus starting value (A) and a residual (e). The residual represents variance in the data that is unaccounted for by the predictor. When regression is conducted in research, a commonly reported estimate is R^2, which can be interpreted as the percentage of variance in the outcome that is accounted for by the predictor. Researchers also typically report an F-statistic, which is a figure based on the ratio of variance predicted in the model to variance that is unexplained in the model, and determines whether the model is statistically significant.

Multiple Regression [1]

Multiple regression predicts an outcome based on the combined effects of more than one predictor. It can be used in several ways based on the way predictors are entered into the model. Types of multiple regression include standard, hierarchical, and stepwise.

Standard: Standard multiple regression can be represented with the following equation:

$$Y = A + \Sigma_i BX_i + e$$

Similar to the equation for simple regression, Y can be interpreted as the combined effect of summed, weighted values (B) of more than one X (predictors) plus starting value (A) and a residual (e). The residual (e) represents error in the data that is unaccounted for by the combined predictors. In multiple regression, the weights (values of B) represent the unique relationships between each X variable and Y while controlling for all other variables. In literature using multiple regression, B weights will often be reported because they represent the unique value of each predictor to the model, in original units. Researchers often report β-weights as well, which are standardized versions of B-weights. As with simple regression, an F-statistic and an R^2 estimate are typically reported. However, in multiple regression, R^2 can be interpreted as the percentage of variance in the outcome that is accounted for the combined predictors.

Researchers using multiple regression must be careful that their predictors are not multicollinear. When two predictors are highly correlated with each other, they are considered to be multicollinear, and this is problematic in multiple regression because it renders estimation of regression values inaccurate.

Hierarchical: In hierarchical multiple regression, researchers test whether new variables add anything to a model after predictors are accounted for. Rather than add predictors all at once as with standard multiple regression, predictors are entered into a regression model in a series of blocks based on theoretical rationale. This allows researchers to determine whether there is a significant change in the amount of variance predicted in each subsequent block of the model. In hierarchical multiple regression, researchers often report a change in R^2 estimate for each block of the regression analysis. This reflects the percent of variance accounted for by each individual block of the regression, rather than by all variables in the analysis at one time.

Stepwise: In stepwise multiple regression, researchers decide whether to include or omit predictors based on statistical criteria. There are several methods for conducting stepwise regression, although it has fallen out of use due to criticism for not being a theory-driven approach to data analysis.

Relevance to Childhood Development

Regression is one of the most commonly used statistical analysis tools used in all research fields, including the field of childhood development. For example, PsychInfo search using the terms "child development" and "regression analysis" yields 2,443 results. Therefore, understanding of regression analysis is important for researchers, clinicians, and others work with children to maintain current information about research which informs their fields.

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Regressive Autism

►Acquired Autism

Regulation of Emotion

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Synonyms

Emotion control; Emotion management; Emotion regulation; Emotional self-regulation; Self-regulation of emotion

Definition

Regulation of emotion refers to the processes whereby individuals monitor, evaluate, and modify their emotions in an effort to control which emotions they have, when they have them, and how they experience and express those emotions.

Description

Before discussing regulation of emotion, it is important to first define emotion. Unfortunately, there is no clear consensus among affect researchers as to the one best definition of emotion. Instead, research and theory on emotion have been characterized by much conceptual and definitional confusion [4]. This confusion is due, in part, to the fact that emotion has been studied from a diverse set of disciplinary perspectives, including, for example, psychology, neuroscience, sociology, and philosophy [7]. However, in terms of organization and association with other constructs, emotion is often considered a subset of the more general term *affect*. In particular, affect has been organized into three levels: *affective traits*, *moods*, and *emotions*, with moods and emotions considered two distinct types of *affective states* [11]. Further, the distinction between moods and emotions is often based on intensity and duration, with moods being longer, more diffuse, and without a particular referent; whereas emotions tend to be shorter, more intense, and in response to a particular referent [6, 11]. Using this conceptual framework, then, emotion can be defined as an acute, intense, and typically brief psycho-physiological change that results from a response to a meaningful situation in an individual's environment [11]. Importantly, emotions are experienced from an individual's point of view; that is, they are subjective. Of course, as mentioned previously, not all affect researchers subscribe to this conceptualization of emotion (for alternative perspectives, see [2]).

Using this definition of emotion as a foundation, *emotion regulation* simply refers to the processes involved with managing one's emotions. These regulatory processes can be automatic or controlled, conscious or unconscious [7]. Ultimately, emotion regulation involves processes that change the dynamics of the emotional response [16]. That is, emotion regulatory processes affect the latency, intensity, frequency, and duration of emotional responses in the psychological and physiological domains [5].

Several aspects of this definition of emotion regulation warrant further clarification. First, emotion regulation can involve increasing, maintaining, or decreasing both negative and positive emotions [7, 17]. Second, emotion regulation is generally concerned with regulation of "self" and does not include attempts to influence others' emotions (although some theories of emotion regulation do include consideration for "other" regulation; [17]). Finally, emotion regulation can occur along a continuum that spans from conscious, effortful, and controlled regulation (the prototypical form of emotion regulation) to unconscious, effortless, and automatic regulation [7].

Emotion Regulatory Processes

An essential goal for affect researchers is to better understand the processes involved in emotion regulation. That is, what do people actually do when they attempt to regulate their emotions? Although there are a multitude of emotion regulatory processes one could conceptualize, Gross [7] proposed a parsimonious model that includes five sets of processes: situation selection, situation modification, attention deployment, cognitive change, and response modulation. *Situation selection* involves approaching or avoiding certain people, places, or objects in an effort to regulate emotion. An example of situation selection would be taking a different route to the playground to avoid an altercation with a bully. *Situation modification* refers to efforts aimed at directly modifying the situation to alter its emotional impact. An example would be convincing a schoolmate to play in a different area of the playground to avoid an argument with a bossy

child. *Attention deployment* processes include strategies that change attentional focus away from emotion-inducing situations; for example, distracting oneself from an emotional situation or concentrating deeply on another non-emotional task. *Cognitive change* involves modifying cognitive appraisals to adjust the emotional response. Examples include denial, reappraisal, and optimistic thinking. Whereas situation selection, situation modification, attention deployment, and cognitive change all happen before an emotion is elicited; *response modulation* processes transpire once an emotional response has occurred. As such, response modulation is meant to directly influence psychological and physiological responding. Examples of response modulation include biofeedback, relaxation, and exercise [7].

Theoretical Perspectives

In psychology and education, regulation of emotion has been conceptualized from several different theoretical perspectives. For instance, according to Skinner's behavioral learning theory, emotion regulation is a process in which individuals learn to respond to observable stimuli depending on the antecedents and consequences of actions as they either are reinforced or punished [15]. Although, according to Skinner's behavioral learning theory, emotions have a genetic connotation, the expressions and regulation of emotion depend on the individual's history of reinforcement and stimulus control. In contrast, social cognitive theory conceives emotion regulation as a learning process that occurs largely by observing others [1]. Moreover, social cognitive theory considers cognitive factors, beliefs, values, perceptions, interests, and expectancies as critical aspects of emotion regulation. In this view, emotion regulation is a triadic, reciprocal process whereby individuals control emotions in an effort to influence their environment and their own behavior. In turn, the environment and behavior reciprocate by influencing how individuals experience and express their emotions to ultimately become effective social agents. Finally, from the social cognitive perspective, emotion regulation depends on individuals' *self-efficacy*; that is, their beliefs in their capability to effectively manage particular situations and their emotional responses to those situations.

Relevance to Childhood Development

For children, there are many developmental pathways to effective emotion regulation. These pathways evolve from efforts of external agents to manage the emotions of children, as well as from the child's growing capacity to self-regulate [17]. During childhood, children gradually acquire the emotion regulation skills and strategies necessary to cope with various developmental challenges [5]. In early childhood, the child's ability to regulate emotions is dependent on the caregiver's awareness, flexibility, and responsiveness to the child's emotional needs. As the child ages, her ability to self-regulate grows as she gains independence, control, and an identity of her own [5]. Thus, like other forms of self-regulation, emotion regulation is initially supervised by caregivers and teachers at early stages of skill acquisition, but as children mature, they begin to develop competent emotion regulation by internalizing the regulatory strategies they have observed in others.

The importance of emotion regulation becomes clear as children progress through adolescence. In particular, many adolescents experience emotional conflicts during the transition from elementary to middle school or from middle school to high school [13]. Although most children successfully navigate these stressful transitions, for some the emotional conflicts are not adequately handled and can result in maladaptive behaviors (e.g., school delinquency, overeating, and drug abuse). Consequently, it is important for adults to assist children as they develop and learn to manage their emotions. For example, preadolescents often need assistance understanding that emotions such as anger, fear, and frustration are a natural part of growing up. By simply acknowledging these feelings and helping children identify appropriate strategies for managing their emotions, adults can help children develop adaptive emotion regulatory processes. Ultimately, the hope is that children will learn that although they cannot always control what happens to them, they can control how they think about what happens to them and how they react emotionally [9].

Influences on Learning and Performance

From the perspective of learning and performance, emotion regulation is considered a critical competence [13]. Although affect has historically been deemed important to theories of learning and development, moods and emotions have been largely neglected in educational research [14]. Recently, however, educational psychologists have acknowledged the importance of affective states and their impact on learning in academic and non-academic settings. Accordingly, researchers and practitioners have started integrating emotion and emotion regulation into theories of learning and development. In fact, research conducted within the last decade has made it clear that emotions are intimately involved in virtually every aspect of teaching and learning [14]. As such, understanding the nature of emotions as they unfold and are regulated in

various learning contexts has become an important goal for educational psychologists [10].

In general, emotions are thought to influence learning and performance through several mechanisms. First, emotions affect memory processes such as retrieval and storage of information [10]; that is, memory can be enhanced if the individual's affective state at the time of retrieval matches his affective state at the time of encoding. Second, emotions influence the type and amount of cognitive and metacognitive strategies employed by individuals. For example, positive emotions are generally hypothesized to facilitate the use of flexible, deep processing strategies like elaboration, organization, and metacognitive self-regulation, whereas negative emotions are thought to result in the use of more rigid, shallow processing strategies like simple rehearsal [10]. The third way emotions can influence learning and performance is through an increase or decrease in attentional resources, as well as through general interference with working memory functioning (i.e., excess cognitive load; [10]). Finally, emotions can have an effect on motivational processes, such as self-efficacy beliefs and goal orientations [8]. Although somewhat oversimplified, positive emotions are thought to lead to more adaptive motivational processes, whereas negative emotions are assumed to result in decreased motivation (although some negative emotions, such as fear, may actually increase the *extrinsic* motivation associated with a task; [13]).

It is clear from the dynamic, reciprocal links between emotion and cognition that emotion regulation – under the broad rubric of self-regulated learning – is an essential competency for children to master as they develop and learn across a variety of academic and non-academic contexts. Through effective self-regulation of emotion, children move closer to becoming autonomous, self-regulated learners.

Emotion Regulation and Self-efficacy

Emotion regulation is a hallmark of being human and developing as a productive agent in society. From the social cognitive view, self-efficacy beliefs are essential for the effective development of human agency and are the social foundations of all emotion regulation [1]. With this in mind, caregivers and teachers can help children develop self-efficacy for managing and exercising self-control of their emotions. Adults can also help children develop the willingness and ability to delay gratification in order to postpone immediate impulse behaviors and wait for an appropriate time to express their emotions in socially-acceptable ways [3]. In doing so, caregivers and teachers help children develop *emotional self-efficacy*, which is the belief that they are in control of their emotional experiences [12].

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Regurgitate

▶Purging

Rehabilitation Act of 1973

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Definition

Replaced the Vocational Rehabilitation Act, expanded the requirements of states receiving funding for rehabilitation services, and placed special emphasis on those with more severe handicaps.

Description

This Act was passed by the Senate and House of Representatives of the United States of America on September 26, 1973 and was written to replace the Vocational Rehabilitation Act. The Rehabilitation Act of 1973 provided a framework for the Rehabilitation Services Administration to determine how states would meet the needs of handicapped persons [1]. Section 501 of the Act prohibited discrimination in employment of persons in Federal agencies of the executive branch of the United States government. Section 503 required affirmative action for those persons with disabilities and prohibits discrimination in employment of Federal contractors or subcontractors with contracts worth more than $10,000. Section 504 established the civil rights of handicapped individuals and prohibited discrimination in the employment of handicapped persons among Federal agencies or agencies receiving Federal funding. Section 508 required that electronic information and information technology be made available to individuals with disabilities.

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Reinforcement

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Synonyms

Self-reinforcement

Definition

Reinforcement is a behavioral process in which a response produces the presentation of a desirable consequence or termination of an aversive consequence thereby increasing the future probability occurrence of the response under similar circumstances [1, 2].

Description

There are two forms of reinforcement: positive reinforcement and negative reinforcement [1, 2]. **Positive reinforcement** is a process by which a stimulus is added to the environment contingent on a response which subsequently increases the future probability of the response. For example, when an infant begins to coo and babble, the feedback provided by its caregiver (e.g., verbal response, physical interaction, facial expressions, etc.) reinforces the cooing and babbling increasing the likelihood of future cooing and babbling. **Negative reinforcement** is a process by which a stimulus is removed from the environment contingent on a response which subsequently then increases the future probability of the response. For example, if a child is "bugging" an older sibling and the sibling hits the younger child resulting in the child running away, the hitting has been negatively reinforced by the termination of the nagging. In the future, the older sibling is more likely to hit their younger sibling when he is bugging the older sibling. Reinforcement, regardless of it being positive or negative, functions to increase the probability of a response be it a desirable or undesirable behavior. Reinforcement is often used to teach new behaviors, and to increase desirable behaviors in behavior management interventions.

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Reinforcement-Maintained Behavior

►Extrinsically Motivated Behavior

Reinforcers

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Definition

A reinforcer is a stimulus that generates an increase in the rate of the response that produced it.

Description

Reinforcers can be characterized as either positive or negative [1]. A positive reinforcer functions to increase the future likelihood of behavior **contingent** on the stimulus presentation. A negative reinforcer functions to increase the future likelihood of behavior contingent on the stimulus removal. There are different types of reinforcers: primary and conditioned [3]. Primary reinforcers are stimuli that produce their effects on behavior without any history or prior exposure and are often associated with survival functions (e.g., food) [4]. Primary reinforcers may vary in their magnitude temporarily through deprivation and satiation (i.e., **motivating operations**). Conditioned reinforcers are previously neutral stimuli that come to function as reinforcers because they have been paired with reinforcing stimuli. For example, the word "good" initially upon being heard is neutral; however, through it's pairing with smiles, hugs, and other affection, the word "good" comes to function as a reinforcer for the behavior that produces it [2]. Conditioned reinforcers are often more effective than primary reinforcers as they are more challenging to affect via satiation.

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Reitan, Ralph M.

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Life Dates

1922–present

Introduction

Dr. Ralph Reitan is often seen as the "Father of Clinical Neuropsychology" with over 250 publications as well as being one of the foremost American psychologists of the last 50 years. His work with Ward Halstead resulted in the development of the Halstead–Reitan Neuropsychological Battery (HRNB). Dr. Reitan's work is viewed as groundbreaking in psychology and neurosurgery, because of its utility in predicting the location of brain lesions. The HRNB remains the most widely used neuropsychological battery in North America.

Educational Information

Dr. Reitan received his doctorate in physiological psychology under the supervision of Dr. Ward Halstead at the University of Chicago.

Accomplishments

Dr. Reitan's interest in neuropsychology was seen early in his studies with Ward Halstead and through his interest in biological intelligence. In an effort to understand normal brain functioning Reitan's early research focused on tests that would predict localized brain-damage. His early research studied World War II veterans. These tests would collectively go on to be known as the Halstead–Reitan Neuropsychological Battery (HRNB).

Reitan spent considerable time in conducting research validating the HRNB at the Indiana University Medical Center. Reitan's major contributions involved an actuarial approach to psychological tests and the use of a fixed battery approach which allowed the collection of predictive data which continued to validate his procedures. In addition to the original validation of the battery, Reitan and others conducted research and validation on the HNRB and its ability to provide a diagnosis, lesion localization and functional impairment. Such work is responsible for the HNRB becoming the most widely used neuropsychological battery in the Americas. Dean [1] reviewed the Halstead–Reitan Neuropsychological Test Battery and indicated that, "neuropsychological assessment in North America has focused on the development of test batteries that would predict the presence of brain damage while offering a comprehensive view of a patient's individual functions. Numerous batteries have been offered as wide-band measures of the integrity and functioning of the brain. However, the HRB remains the most researched and widely utilized measure in the United States" (p. 642).

During his time at Indiana University Medical Center, Reitan also worked with refining the HRNB, adjusting individual tests for use with younger patients (9 to 14 years) in what would become The Halstead–Reitan Neuropsychological Test Battery for Older Children. With its validation it has become an important measure in older pediatric populations. This battery has proven significant in differentiating between normal and brain-damaged children [2]. Although valid with 9–14 year old patients, Reitan decided there was a need for significant changes for younger children. Reitan attempted a functional

developed equivalent for children 5–9 years old which is the Reitan-Indiana Neuropsychological Test Battery for Children. This measure represented a vast change of tests from the HRNB. Related perhaps to the age of the subjects, the typical validity and reliability found with the HRNB has not been demonstrated.

Dr. Reitan has taught at Indiana University, University of Oregon and University Arizona. He has received numerous awards and recognitions, from both the fields of psychology and medicine. Clearly, Ralph Reitan and his work have made major changes in modern psychology, not the least of which is major responsibility for a viable new specialty in psychology.

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Rejected Children

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Synonyms

Low-accepted children; Low social status children; Peer rejection

Definition

Rejected children are those that are excluded from the activities of the larger group. Within the peer group, there are varying degrees of acceptance. Peer acceptance is measured through ►sociometrics, whereby peer rejection is defined as being actively disliked by the peer group (e.g., the child's classroom or grade level). Most widely studied in children, peer rejection is linked to a wide array of concomitant difficulties, including academic difficulties, ►aggression, loneliness, depression, anxiety, and juvenile delinquency.

Description

Peer rejection is a phenomenon that cuts across a number of diagnostic categories. Indeed, it is more developmental in nature and a group process than a characteristic of the individual, per se [1]. In order to understand peer rejection, it is important to understand the process of peer acceptance versus rejection as a whole.

Often assessed through classroom-wide peer nomination or sociometric techniques, children are assigned to categories of popular, average, neglected, rejected, or controversial [2]. Popular children are widely liked, neglected children do not tend to be actively liked or disliked, controversial children are both actively liked and actively disliked, whereas rejected children are widely disliked. Approximately 15% of children are rejected by their peers. Peer rejection is remarkably stable, even when the rejected child enters a new peer group. In contrast, children who are neglected by their peers tend to shift into the rejected or more well-liked categories over time [1, 2].

Behavioral Characteristics

What is it about a child that incites widespread levels of dislike among his or her peer group? Rejection is firmly linked to behavior problems such as aggression, classroom disruptiveness, and inattentiveness [1, 2]. Predictive models highlight the ability of peer rejection to predict these difficulties over time.

The well-liked child tends to be cooperative, friendly, and possessing of some particular skill or talent, such as being athletic, smart, funny, or creative. The rejected child is, in contrast, uncooperative, annoying, and does not possess an offsetting skill or ability. This is typically a child who angers easily and is both verbally and physically aggressive. Rejected children might also have an off-putting characteristic, such as being overweight, unattractive, or disheveled. Specific social skills deficits are commonly found in the areas of peer entry, perspective-taking, and social-cognitive processing, such as understanding the motives of another's behavior or being able to accurately read social cues [1–3].

Academic and Psychological Maladjustment

Rejected children also have academic and psychological difficulties [4]. These children are more likely to be truant,

suspended, and/or drop out of school [5]. In addition, rejected children have lower levels of classroom participation and lower academic achievement [6, 7].

Children who are rejected by their peers suffer emotional difficulties, as well. Higher levels of depression, loneliness, and anxiety are related to levels of peer rejection [8, 9]. Oftentimes, these children want to have friends and are lonely as a result of their rejection. However, the existence of just one reciprocal friendship appears to function as a protective factor against loneliness and depression in grade school [8, 9]. Although not considered a symptom of any particular disorder per se, peer rejection has been linked to Attention-Deficit/Hyperactivity Disorder in the research literature [10].

There is a subset of aggressive and rejected children that are likely to affiliate with a deviant peer group [11, 12]. It stands to reason that an aggressive child is more likely to be accepted by a peer group where aggression is more normative. In fact, escalated aggression and antisocial behavior may elevate one's status within that deviant peer group. In this subset, the rejected child is more likely to have difficulties with substance abuse and criminal behavior [4, 11, 12].

A Predictive Model for Peer Rejection

An additive model appears to have the strongest research support and is one that ascribes an independent, partially correlated influence of child characteristics, such as aggressive or withdrawn behaviors, and peer social status on child adjustment. For example, in a longitudinal study of children ages 5–12, researchers found that both aggression and rejection predicted externalizing problems, with the influence of rejection being stronger at earlier points in development [13]. The combination of withdrawn behavior and rejection predicted internalizing problems, with the impact of peer rejection being stronger as the children matured. These findings highlight the complicated nature of peer rejection as a predictor of child outcomes.

It is difficult, if not impossible, to account for all of the variables that influence peer acceptance versus rejection. These variables are contingent on the demographics of the social group, the physical environment, and the developmental context. Many of these variables fluctuate across environments and time periods. For example, there is evidence to suggest that peer acceptance is more valuable to members of the majority group (e.g., Caucasians) than to minorities [4]. Similarly, peer rejection has a larger impact on psychological adjustment for girls than boys [13]. A child's social status, therefore, is a function not only of that child's individual characteristics (i.e., behavioral traits, social support, coping skills) but also of the specific group dynamic.

The influence of peer rejection itself changes over time, taking on a life of its own [14]. For example, a child might initially be rejected by peers in preschool for aggressive, bossy behavior. Because he is rejected by his peers, these peers then identify him as someone to automatically exclude and to also be the target of victimization. These resultant experiences serve to encourage further aggressive behavior in a cyclical fashion. It may very well be this *experience* of peer rejection that results in psychological maladjustment.

Intervention

Due to the complicated nature of peer rejection, intervention efforts are typically only partially successful or yield mixed results [1]. Because peer rejection results from a combination of specific social skill deficits, the presence of inappropriate behavior, emotional dysregulation, and social problem-solving deficits, it is important for an intervention to have a comprehensive focus. The role of the peer group cannot be ignored, either. It is important for children to be able to identify and capitalize on opportunities to move into new social networks.

A reputational bias exists, whereby a child's reputation precedes him in future social interactions [1]. For example, if a child has a reputation for being aggressive, peers are more likely to notice the times when that child is aggressive than instances of friendly, cooperative behavior [12]. As a result, reputation is difficult to change in the peer group, especially at older ages. Therefore, early intervention is preferred, in order to change the rejected child's reputation before it becomes stable.

Peer-mediated interventions may be met with greater success in changing peer reputation. These interventions incorporate peer coaching or are classroom-based. Such interventions not only provide skill training directly to the rejected child, but encourage awareness of behavior change in the peer group and provide specific opportunities for new friendships to form [1].

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Rejecting Parenting Style

►Indifferent Parenting Style

Rejecting Parents

►Uninvolved Parents

Rejecting/Neglecting Parents

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Synonyms

Uninvolved parents

Definition

Rejecting/neglecting parents are low on measures of demandingness and responsiveness.

Description

Baumrind [1] and Maccoby and Martin [2] have differentiated four parenting styles based on how high or low parents are on each of two independent factors: demandingness and responsiveness. Variations in these factors produce four parenting styles: authoritative, authoritarian, permissive/indulgent, and rejecting/neglecting. A basic tenet of this typology is the notion that exactly how parents socialize their children and the amount of behavioral control and responsiveness displayed varies across parents. These are considered normal variations in parenting and these four parenting styles are not intended to represent abusive parenting behaviors.

Demandingness refers to the level of behavioral control, demands placed, or discipline parents display in their attempts to socialize their children. Responsiveness refers to the level of warmth and sensitivity parents display in their interactions with their children. Parents high on both demandingness and responsiveness display optimal Authoritative parenting and their children evidence competence academically and behaviorally [3, 4]. Authoritarian parenting is high on demandingness but low on measures of responsiveness, suggesting that these parents engage in less sensitive, coercive parenting. Children of authoritarian parents may fare moderately academically, but may lack behavioral control. Permissive parents are highly responsive but lack in demandingness often resulting in children with poor academic functioning and moderate problem behaviors. Rejecting/neglecting parents lack both demandingness and responsiveness. Rejecting/neglecting parents apply little control and are also less sensitive to their children's needs. Children of rejecting/neglecting parents tend to fare the most poorly with difficulties across all academic, behavioral, and social domains.

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Rejecting-Neglecting Parenting Style

►Permissive Parenting Style

Relational Aggression

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Synonyms

Covert bullying; Indirect aggression; Relational bullying; Social aggression

Definition

Relational aggression is the use of exclusionary and/or other nonphysical behaviors to undermine another person's self-esteem or group status.

Description

Relational aggression involves the intent to harm another person through nonphysical injury to or manipulation of relationships. Relationally aggressive behaviors can be covert (i.e., spreading rumors, gossiping, ignoring, excluding) or overt (e.g., directly telling a peer, "If you don't do what I say, I won't be your friend"). Similarly, relational aggression can be reactive in that it occurs in response to feeling angry or threatened, or it can serve an instrumental purpose in getting what one wants.

Both males and females engage in relational aggression. While it is a commonly held belief that females exhibit higher levels of relational aggression than males, research addressing gender differences in prevalence rates has yielded inconsistent and contradictory results. Specifically, results of some studies suggest more females engage in relational aggression, others have found no gender differences, and some studies suggest the prevalence is higher for males but it is more apt to be underreported [4].

Relevance to Childhood Development

Children who engage in acts of relational aggression typically do so to maintain or improve their position in peer groups. Evidence suggests that relational aggression may cause as much, if not more, damage than physical aggression. Victims are at-risk for negative outcomes such as anxiety, depression, suicidal thoughts and behaviors, school avoidance, peer distrust, and low academic achievement [1]. Children who are frequent targets of relational aggression and/or who experience relational aggression in the context of a close friendship are at greatest risk for adjustment problems.

Research suggests that efforts to reduce relational aggression by intervening with individual students have generally resulted in little to no positive behavior change [2]. Consequently it is recommended that relational aggression be addressed in the context of broader systems-level interventions such as school-wide positive behavior support [3] to create positive and safe social climates and decrease antisocial behavior in general.

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Relational Bullying

►Relational Aggression

Relational Frame Theory

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Synonyms

RFT

Definition

Relational Frame Theory (RFT; [13]) is a behavior analytic theory that analyzes and explains the development of language and cognition in terms of learned, generalized, contextually-controlled patterns of relational responding, referred to as *arbitrarily applicable relational responding* or *relational framing*.

Description

Relational Frame Theory (RFT; [13]) is a behavior analytic approach to language and cognition. Behavior analysis has traditionally been regarded as an extremely effective approach with regard to training non-verbal skills in non-humans and non-verbally able humans but has been seen as deficient in terms of its ability to account for the generative nature of human language (see [6]). Relational Frame Theorists would agree that traditional behavioral accounts such as that of Skinner [22] are theoretically inadequate with respect to this aspect of language. However, they argue that the novel generalized relational operant account provided by RFT successfully overcomes the limitation in this respect of earlier behavioral accounts and empirical evidence to date, some of which will be cited below, bears out this contention. As such, Relational Frame Theory includes the rigor, parsimony and strong empirical foundations of behavior analysis, but goes beyond traditional behavioral accounts to explain the generative nature of language, thus ultimately enabling it to present a comprehensive, theoretically unified, empirically well-grounded and practically applicable psychological account of many aspects of higher human functioning.

Arbitrarily Applicable Relational Responding

The key concept in the RFT account of language is arbitrarily applicable relational responding. This can be explained as follows. Many non-human animals can be trained to respond to physical relationships between objects; for example, they can be trained to consistently pick the biggest object from an array. Humans also can do this from a very early age. However, RFT argues that language able humans show an additional type of relational responding that other animals do not in which they relate objects not based on the physical relation between them but based upon contextual cues that determine which relation is appropriate.

For example, imagine a verbally able child is given an exercise involving the hypothetical characters Mr. A. and Mr. B, in which she is told that "Mr. A is taller than Mr. B". If subsequently asked to say which person is shorter, she will likely say "Mr. B" without needing to be told anything further. This response is based upon the contextual cues "taller" and "shorter" rather than on physical relations. Since the taught relation need not depend in any way on physical relations and hence is arbitrarily applicable to any stimuli no matter what their physical properties, this type of responding is referred to as arbitrarily applicable relational responding.

The Emergence of Relational Framing

According to RFT, there are many different patterns of arbitrarily applicable relational responding or, as it is also known, relational framing. These relational patterns or "frames" are forms of operant behavior that humans learn through multiple exposures to interactions with their native language community in which these patterns feature.

Learning to name objects is perhaps the earliest and most basic form of relational framing. As in the case of most forms of relational framing, naming is learned, according to Relational Frame Theory, through *multiple exemplars* of the pattern to which the child is exposed through everyday language interactions. A parent will often say the name of an object (e.g., "This is an apple") and then reinforce (with smiles, praise etc.) any orientation response (e.g., looking or pointing) towards that object (the actual apple). This teaches "Hear name A -> Look at object B." The parent might also present an object (e.g., the apple), ask for the name (e.g., "What is this?"), model the pronunciation of the correct name (e.g., "This is an apple") and then praise the child for production of the same name, which effectively teaches "See Object B -> hear and say name A" (see [1], for a more detailed discussion of this type of interaction). This will happen with many different objects over time. In the beginning, each such interaction may require explicit reinforcement in order for the child to be able to produce it appropriately. Eventually, however, through multiple exposures to this bidirectional pattern (*Name [A] goes with Object [B], Object [B] goes with Name [A]*), the generalized operant of naming results. At this point the child will be able to respond in accordance with the naming pattern based on

contextual cues alone (e.g., such as the word "is") and will not need to be explicitly taught in both directions. Hence, with a novel object-name combination, the child need only be taught in one direction and will be able to respond immediately and without further training, in accordance with the bi-directional pattern. For example, the child might be shown a novel object (e.g., a pencil) and told "This is a pencil." Contextual cues including the word "is" will cue the bidirectional relational pattern so that later if asked "Where is the pencil?," the child will be able to look at or point to the correct object without being explicitly trained to do so (for more detailed descriptions of the learning processes involved see [1, 2, 11, 12, 14, 15]).

Varieties of Relational Framing

Once the child has learned this 'naming' response pattern then being told the name of a novel object (e.g., "This is a car"), which involves the presentation of contextual cues for this pattern (including the word "is," for example) will bring to bear the relational frame of coordination (sameness) between word and object. Coordination is just one example of a relational frame. There are many other types of framing also learned on the basis of multiple natural language exemplars, each of which, similar to the example just seen, essentially involves learning to produce particular patterns (frames) of responding in the presence of particular classes of contextual cue. Some further examples include responding in accordance with frames of opposition (e.g., "Big is the opposite of small"; the word "opposite" here is the cue for a relational pattern of opposition), difference ("A boat is different from a ship"; the cue here is "different," though other words or phrases such as "not" or "other than" could also cue a relation of difference), comparison (e.g., "An elephant is bigger than a mouse"; the cue here is "bigger"; other words and phrases that might function as cues for comparative relations include "greater," "smaller," "more than," "less than" etc.) and perspective-taking (e.g., "I am here, but you are there"; cues for deictic or perspective relations include words such as "I," "you," "here," "there," "now" and "then"). Furthermore, there is an increasing quantity of empirical support for the existence and development of these and other frames (e.g., [7–9, 20, 21, 23]).

Apart from simply demonstrating the existence of such patterns of responding in the behavior of adults and children, RFT researchers have also used the relational frame concept to empirically model several key aspects of complex human cognition including, for example, analogical reasoning (e.g., [24, 25]), rule following (e.g., [10, 18]), perspective-taking (e.g., [17]) and verbal motivation (e.g., [26]).

Properties of Relational Framing

Despite their diversity, all relational frames ultimately involve three defining features. (a) *Mutual entailment* refers to the fact that a relation in one direction between two objects entails or automatically gives rise to a second relation in the opposite direction. For example, if a verbal person is given two foreign coins and told that coin 1 is worth more than coin 2, then they will derive that coin 2 is worth less than coin 1. In other words, the first relation entails the appropriateness of the second relation and this works whichever of the two is trained first (i.e., it is mutual). (b) *Combinatorial entailment* is the phenomenon in which two relations are combined to form a third relation. For example, given three foreign coins, if coin 1 is worth more than coin 2, and coin 2 is worth more than coin 3, then a "more than" relation is entailed between coins 1 and 3, and a "less than" relation is entailed between coins 3 and 1. (c) *Transformation of stimulus functions* is extremely important as regards the psychological relevance of relational framing since, from an RFT perspective, it is the process according to which language can control our behavior. In technical terms, if two stimuli, A and B, participate in a relation, and one stimulus (e.g., A) has a psychological function, then under certain conditions the stimulus functions of B may be transformed in accordance with that relation. For instance, imagine a verbally able child who is shown a coin and told that now they can buy candy in the store. Telling them that they can buy candy gives the coin value and thus makes it desirable to have it (in technical terms, this gives the coin an "appetitive" function). If they are then shown a second coin and told that this second coin is worth more than the first then the psychological functions of the second coin may be transformed such that it is now more desirable (or more appetitive) than the first and if given a choice between the two coins the child will choose the second.

Relevance to Childhood Development

RFT is an operant account of the development of language and cognition that explains these phenomena in terms of the development of learned patterns of generalized relational responding and the patterns of transformation of psychological functions that these learned patterns produce. As such, it suggests that linguistic and cognitive skills may be trained and it posits important parameters for such training. Indeed, several empirical studies already demonstrate the successful training in young children of relational frames including coordination (e.g., [16]), opposition (e.g., [3]), comparison (e.g., [4]), perspective-taking (e.g., [19]) and analogical reasoning [5].

Based on its potential comprehensiveness as well as its practical utility as an approach to training intellectual skills, Relational Frame Theory is highly relevant to the domain of childhood development. It is a relatively young approach as yet, and thus research based on this approach is only beginning to blossom. However, it offers the potential for a theoretically unified, empirically well-grounded, practically useful conceptualization of a number of core areas of human development including intellectual, linguistic, emotional and moral development. A detailed description of the RFT conceptualization of each these specific areas of development is beyond the scope of this entry but those interested can read further in Hayes et al. [13], and in the empirical citations made above.

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Relationships

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Synonyms

Attachments; Family relationships; Interpersonal processes; Parent-child relationships; Sibling relationships; Teacher-child relationships

Definition

A relationship is an interpersonal process with ongoing involvement over time. In children, relationships are usually classified by whom the relationship is with: parents, siblings, peers, and significant others in a child's life such as a teacher.

Description

Relationships constitute the social landscape within which a child develops. There are many different kinds of relationships that develop and take on different degrees of importance across childhood. Initially, the parent-child relationship is the most important. Then siblings within the family environment are a focus during the preschool period and beyond. Upon school entry, peer relationships become critical, and in adolescence, these are related to the formation of intimate and romantic relationships [1]. At a purely behavioral level, a relationship consists of a history of verbal and non-verbal behaviours which are interdependent between individuals, but this ignores cognitive components of relationships that are also essential. In keeping with this cognitive approach, there are several generalized principles that are helpful to understand what a relationship is [2].

First, a relationship is an entity unto itself, that is, it is an "*organized whole.*" It cannot be predicted simply by knowing the individual characteristics of each member of the relationship. As it may have unique characteristics, the relationship itself can be the unit of focus and analysis. For example, a bullying relationship between peers could arise when one child believes it is okay to exploit others within a relationship and the other child is passive and can be victimized. But predictive models of bullying relationships are not foolproof, so knowing this information about the individual characteristics of two children does not necessarily mean a bullying relationship will arise. Second, relationships exhibit "*coherence and continuity,*" that is, there should be stability across time and across contexts. Surface behavior may change, but the underlying functions and processes remain predictable. For example, a parent who is critical of their young child by teasing them about their appearance may continue to do so into adolescence, or they may be critical of their educational attainment and occupational aspirations instead. What is common is that the relationship is negative and contains parental criticism, even though the surface behavior of this criticism changes. Third, individuals "*internalize relationships,*" usually through representational models of how the self and other behave in relationships. This may include expectations of social behavior, schemas for how relationships function, and internal working models of secure base behaviour. For example, a child may be neglected by parents throughout childhood, and develop the expectation that "I cannot and should not count on others." Others might have received criticism throughout childhood, developed a poor self-image, and thus feel unloved. Fourth, represented relationships are "*carried forward*" and thus affect future relationships. Continuing with the above examples, this child may develop future relationships in which they are emotionally avoidant of others, given their expectation that others are not there to meet their needs in times of stress and/or they themselves are ultimately unlovable.

These general principles are for dyadic relationships between a child and someone else, but can also be used to describe larger networks of relationships, such as within a family. Each kind of relationship mentioned above (e.g., parent, sibling, peer, teacher) has extensive research within and across domains as described elsewhere in this volume.

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Relative Performance Indexes

▶Age Equivalent

Relativistic Philosophy

▶Constructivist Psychotherapy

Reliability

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Synonyms

Consistency; Dependability; Repeatability; Stability

Definition

Reliability is used within the context of psychological assessment and educational testing to refer to the consistency of assessment results. Reliability may refer to consistency over time, within the individual items on a test, across more than one rater or scorer, or across more than one form of a test. Which of these types of reliability are most relevant will depend on the type and purpose of the psychological or educational test.

Description

Reliability refers to the extent to which scores on a psychological or educational test are consistent or stable. Note that reliability refers to *scores* or *results* obtained on a test, rather than to the test itself (see [2, 4]). This is because indices of reliability may vary from a small to large degree with different samples of people, across different time intervals, and with different gender, age, or ethnic groups. For some purposes or for some scores or for some groups, reliability may be high, while for others reliability may be low. Thus, reliability is a characteristic of the scores obtained with a test rather than a characteristic of the test itself.

Test results provide a limited measure of performance on a limited number of tasks at one particular time. Test users would like to think that such test results are consistent over different testing occasions, different raters, or different samples of items from the same content domain. If a score is stable, rather than fluctuating randomly, users will have more confidence that a score is an accurate estimate of performance or functioning. Score reliability typically is measured quantitatively with a correlation coefficient such as Pearson *r*, with coefficients closer to 0.0 indicating less reliability and coefficients closer to +1.0 indicating greater reliability.

Reliability can be estimated in many different ways, depending on the purpose of the psychological or educational test and types of items and scores included on the test. Four broad categories of methods of estimating reliability are described below. For more detailed discussion of specific reliability analyses, the reader is referred to those resources cited in the References list. For example, see Thorndike [3] for a more mathematical treatment of reliability.

The first method of estimating reliability is internal consistency, which refers to consistency within the items on a test or assessment procedure. High internal consistency coefficients indicate that the items on a test are strongly intercorrelated, suggesting that each item is assessing the same construct. Methods of estimating internal consistency involve administering the test to a sample of people, dividing the items in different ways, and then correlating the scores from different parts of the instrument. For example, the split-half method is often used with power tests, in which test items become progressively more difficult. With the split-half method, test items are divided into two equivalent halves, usually based on odd and even items in order to control for the effect of increasing difficulty. Then the two halves are scored separately, which provides two scores for each individual. Finally, scores on the two halves of the test are correlated across the entire sample, and the correlation coefficient indicates the degree to which consistent results are obtained from the two halves of the test. The correlation will be more meaningful with a larger number of items. One of the limitations with the split-half method is that it tends to result in small correlation coefficients, thereby providing an underestimate of internal consistency. The Spearman-Brown formula is often used to provide a corrected estimate of split-half reliability.

Other commonly used methods of estimating internal consistency are the Kuder-Richardson formula (K-R 20) and coefficient alpha (also referred to as Cronbach's alpha). These methods split all the items on the test every possible way and then provide the *average* of all possible split-half correlation coefficients. The Kuder-Richardson formula is used when responses are scored dichotomously (e.g., correct or incorrect, True or False), and coefficient alpha is used when responses are not dichotomous (e.g., self-report measures using a 5-point scale). Because these methods do not require the user to split the test items, these methods are often preferred to the split-half method in cases where difficulty is not a consideration (e.g., personality and interest inventories, which do not have correct and incorrect responses).

The second method of estimating reliability is test-retest reliability (sometimes called stability), which is used to estimate the consistency or stability of test scores over time. Test-retest analyses involve administering the same test twice to the same group of people with some time interval between administrations. This time interval often ranges from 1 week to 1 month, but shorter or longer intervals are sometimes appropriate for some types of tests. Once scores are obtained for the two administrations, these sets of scores are correlated. If the results are highly stable, each individual will obtain a score on the second administration that is similar to their score on the first administration. Lower correlation coefficients suggest a larger degree of error and more variability in test performance over time.

The time interval between test administrations is an important consideration with test-retest reliability. If the

interval is too short, people may remember their responses from the first assessment and simply give the same answers again, resulting in an inflated correlation coefficient. If the interval is too long, the results will be influenced by developmental changes, interventions, and exposure to subsequent learning experiences. This will result in a smaller coefficient. Thus, test-retest coefficients tend to decrease in magnitude as the time between administrations increases, and it is impossible to evaluate the quality of a test-retest coefficient without knowing the interval between administrations. Reliability analyses of scores on speed tests are likely to employ the test-retest method, as internal consistency methods are likely to produce inflated coefficients.

Another factor influencing test-retest reliability is the theoretical stability of the construct under investigation. For example, with scores on an intelligence test, users would want test-retest coefficients to be very high because intelligence is conceptualized as a relatively stable construct. With scales measuring emotional functioning such as depression or anxiety, users typically allow for lower coefficients, because these constructs are more influenced by changing environmental factors such as stressors and exposure to intervention. Thus, stability coefficients for scores on personality and interest inventories are typically lower than coefficients for scores on cognitive tests.

The third method of estimating reliability is alternate forms reliability (sometimes called equivalence or parallel forms reliability), which examines consistency across two different forms of the same test or assessment procedure. The process of establishing evidence for alternate forms reliability involves giving two different but equivalent (i.e., based on the same content and specifications and the same number of items in the same format) forms of the test to the same group of people, with no time interval between administrations. After administering the two forms, the scores are correlated. High correlations suggest that the two alternate forms are equivalent or similar in terms of the content or behaviors that are measured.

The alternate forms method is frequently used with standardized tests of academic achievement. In this case, test users may want to measure educational progress, but it would be inappropriate to administer the exact same test over and over to the same student due to practice effects. Thus, different forms of the same test can be used to monitor progress, but users need evidence that the different forms are equivalent. As an example from classroom assessment, teachers sometimes develop two or more forms of a classroom test to control for cheating (i.e., students are less likely to look at one another's tests because there are several different forms of the test). In such cases, teachers would want to ensure that the different forms are equivalent in terms of item content and difficulty so that students' scores are not influenced by which form of the test they take.

The fourth method of estimating reliability is interrater reliability, which refers to consistency of scores across two (or more) different raters or scorers; that is, would two people who scored the same test award the same scores? Interrater reliability is especially important for providing evidence for reliability of scores on subjective tasks, where judgment is required by the rater. These types of tasks include essay tests, performance assessments, and projective psychological tests. Test users would like to think that an individual's score on these subjective tests is not influenced by the professional doing the scoring, but rather is an accurate measure of the test-taker's true knowledge, abilities, or perceptions. The process of examining interrater reliability involves giving a set of responses requiring judgment to two or more raters and having them independently score the responses. Then scores are correlated to see how consistent the raters were. Interrater reliability generally is not considered important for objective tests because no judgment is required to score these tasks (e.g., interrater reliability should be perfect for a multiple choice test).

An important influence on the degree of interrater reliability is the quality of the criteria used to evaluate responses. Well-defined scoring criteria and rubrics, and guided practice in using them, generally lead to greater consistency across scorers. Thus, interrater reliability can be improved by making scoring categories more distinct and by training raters in scoring procedures.

Generally speaking, reliability coefficients are influenced by a number of factors in addition to those factors discussed above. For example, reliability coefficients are influenced by the number of assessment tasks or items on a test (in general, more items typically result in more reliable scores) and the spread of scores on the test (distributions with a wide spread of scores typically result in higher correlation coefficients). Reliability is also directly related to measurement error: as measurement error increases, so do the randomness and inconsistency of scores, thereby decreasing reliability.

In light of the multiple factors that influence reliability and the different methods used to estimate reliability, there is no universally agreed upon correlation coefficient that can be used as a cutoff for a minimally acceptable level of reliability. If the results of an instrument could lead to decisions that have lasting consequences or that have a significant impact on a person's life (e.g., tests of

intelligence and scholastic aptitude), then users would want the instrument to have very high reliability coefficients. Users also can compare the reliability coefficients obtained with the instrument they are considering with those coefficients of other instruments in the area to see if they compare favorably. Users also should examine whether reliability coefficients are significantly different for different groups, such as gender, socioeconomic, ethnic, and age groups. Sometimes coefficients will be smaller for different groups, suggesting caution in using the test with these groups.

Conceptually, reliability is a necessary but not sufficient condition for validity. That is, if a test produces scores that are random and inconsistent, the ability of these scores to facilitate accurate predictions and classifications (e.g., clinical diagnosis, special education placement) will be severely compromised [1]. At the same time, score reliability does not guarantee that the score will lead the test user in the right direction with regard to decision making; appropriate uses and interpretations of test scores are issues of validity.

Relevance to Childhood Development

Tests or standardized procedures are often used for clinical decision making, instructional decision making, educational placement, and research purposes. In order to have confidence that the results of these procedures are consistent and stable, there should be evidence of reliability analyses. The more pieces of evidence for reliability that users have available, either in test manuals or in the research literature, the more comfortable they are using these tests and procedures.

Suppose a teacher administers a classroom test designed to assess the extent to which students have met instructional objectives. After administering and scoring the test, the teacher may wonder: "How similar would students' scores have been if I had tested them yesterday, or tomorrow, or next week?"; "How would the scores have differed if I had used a different sample of items or tasks that measured the same objectives?"; or "How much would the scores have differed if a different teacher scored the tests?" Similar questions arise when a psychologist is interested in assessing the social, emotional, behavioral, or intellectual functioning of children and adolescents. These are the types of assessment-related questions that reliability analyses attempt to answer.

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Religion

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Definition

Religion is defined by Webster's dictionary (Unabridged) as the "belief in a divine or superhuman power or powers to be obeyed and worshiped as the creator(s) and ruler(s) of the universe."

Description

Throughout human existence, man has had the need to understand and explain to himself and others the origins and meanings of the common natural phenomena and the wonders of the world around him. Early men, in every known culture, used their creative imagination to make up stories about the natural events such as floods, earthquakes, eclipses of the sun and moon, and the like. Often in their attempt to make their stories credulous, they gave them anthropomorphic qualities. The Greeks, for example, as early as 2000 B.C., created highly imaginative, wise and instructive myths about gods, which were passed from generation to generation by word of mouth long before the invention of the printing press. In fact, they were the first people who created gods and goddesses that looked like real human beings with human characteristics including virtues, vices, cherished values and ideals. They were described as bigger than life, immortal, forever young, beautiful, powerful, and living a life of leisure. Like human beings they were born, grew up, fell in love, got married, and had children. Ordinary people worshipped them, built temples for them, and were always at their mercy. In essence, people were concerned with the impact of the external world's forces on their day-to-day living.

It was not until the teaching of Socrates who lived from 469 to 399 B.C. that the direction of Greek philosophy was changed from concern with the external world to concentration upon man's inner nature. His student Plato who lived from 429 to 347 B.C. rejected the notion that

knowledge is derived mostly from sensory phenomena. He believed that the soul (psyche), unlike the body, is immortal and contains the imperishable ideas which are the basis of our mental activities. For several centuries men struggled with the Platonic dualism of mind and body. During the nineteenth century several thinkers made meaningful advances in the field of social psychology, anthropology, psychiatry, and neurological discoveries. During this century studies concerning the psychology of religion began in earnest.

Religion was not being considered only as a matter of faith, but as an important subject of intellectual and academic inquiry. Religion was conceptualized as a system of communication which has occupied the mind of human kind from the dawn of civilization. Throughout recorded history philosophers, theologians, anthropologists, and religious scholars attempted to explore and answer some of the vexing questions regarding human existence, deity, destiny, life and death, resurrection, salvation, and human suffering. With the dawning of the twentieth century, different approaches to the study of the origins and functions of religions were explored by several original thinkers such as William James, Sigmund Freud, and Carl Justav Jung. James wrote, in his *Varieties of Religious Experiences* (1901–1902) that *individual religious experiences* rather than adherence to dogmas or doctrines of organized religions are the real essence of religious life. Freud in *Totem and Taboo* (1913) drew a connection between primitive men's religious views and practices and the observed behaviors of obsessive-compulsive neurotics. Furthermore, in *The Future of an Illusion* (1927) and *Moses and Monotheism* (1939), Freud advanced the notion that religious ideas stemmed from men's need to protect themselves from the uncontrollable and destructive forces of nature. The need for protection from an external powerful agent is somewhat reminiscent of a helpless child who looks for a powerful father who can protect and comfort him. Freud assumed that men found it necessary to resort to religious beliefs and practices to comfort and protect them. He never altered his idea that religion was an obsessional neurosis. Jung, on the other hand, assumed that the absence of religion was the chief cause of psychological disorders in the adult population. He believed that religion played a significant part in the daily life of every human being regardless of race, ethnicity, social class, and country of residence.

Whether organized or not, religion has been instrumental in the socialization process by preaching cherished values including love, honesty, respect, charity, compassion, and the like. How such virtuous values are transmitted to others in the course of socialization varies from one religion to the other. Thus, the so-called patriarchal religions; namely, Judaism, Christianity, and Islam, including the various subdivisions in each one of them, tend to be authoritarian. God is viewed as the absolute ruler who demands obedience from his followers and who is highly punitive toward those who challenge his absolute authority. Prior to the emergence of the Roman Empire, Christianity was less authoritarian and more humanistic. They offered hope, love, justice, and salvation to the poor, the deprived, the humble, and the hopeless. They followed the simple and profound teachings of Jesus who reassured his faithful followers that the kingdom of God is within them. This humanism reflected in early Christianity is reminiscent of that noted in the teachings of Socrates and Zen-Buddhism who advocated that no knowledge is valuable or meaningful unless it grows out of ourselves.

Relevance to Childhood Development

In the process of socialization, parents typically assume the responsibility of passing on important religious and moral values and beliefs to their children. Harms (1944), after the analysis of data gathered from children who were asked to draw what they thought God looked like and to comment about his nature, distinguished the following three stages of religious growth: (a) The *fairy-tale stage* which included children between 3 to 6 years of age. These children made no distinction between religion and fairy tales. (b) The *realistic stage* covered children from 7 to 12 years of age. These children tended to be matter-of-fact, questioned the veracity of religious stories, and viewed God as an omnipotent anthropomorphic figure with physical features. (c) The *individualistic stage* corresponding to the age of 12 years through adolescence. Harms encountered a variety of views including the one where God is seen as a spiritual being with whom one may have a very personal relationship. It is worth noting that Harm's threefold classification corresponds to the following Piaget's three stages of cognitive development: *preoperational thinking* (2–7 years), *concrete operational thinking* (7–11 years), and *formal operational thinking* (12 years-adulthood).

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Reluctant Speech

►Selective Mutism

REM

►Rapid Eye Movement Sleep

REM Sleep

►Rapid Eye Movement Sleep

Remarried Families

►Stepfamilies

Remembrance

►Memorization

Remeron SolTab®

►Remeron®

Remeron®

Synonyms

Mirtazapine; Remeron SolTab®

Definition

A prescription medication FDA approved for the treatment of depression.

Description

This medication works by increasing the release of norepinephrine and serotonin in the brain. It is available as a tablet (Remeron®) or as a disintegrating tablet (Remeron SolTab®).

The recommended starting dose is 15 mg taken once a day at night. Maximum suggested dose is 45 mg a day. Dosage increases should be made slowly to prevent side effects. This medication should only be taken as directed by a doctor. It may take 4 weeks before improvement in symptoms is seen. Concomitant use in patients taking monoamine oxidase (MAO) inhibitors is not advised.

Some side effects of this medication include drowsiness, difficulty thinking, constipation, dry mouth, increased appetite and weight gain, dizziness, light-headedness when standing, and abnormal dreams.

Relevance to Childhood Development

Remeron® is not FDA approved for use in children.

A medication guide must accompany this medication containing information related to the increased risk of suicidal thinking and behavior in children, adolescents, and young adults compared to those not taking the medication. Doctors will monitor patients closely for worsening of symptoms, change in behavior, and thoughts of suicide. Patients are strongly encouraged to notify their health care provider to report sudden changes in mood, behavior, thoughts, or feelings.

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Reminiscence

►Memorization

Repeatability

►Reliability

Repression

►Inhibition

Research Ethics Review Boards

►Institutional Review Boards

Residential Care

►Group Homes

Residential Group Care

►Group Homes

Resilience

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Synonyms

Coping; Protective factors

Definition

Resilience refers to a child's ability to emotionally, mentally, and physically adjust to life after experiencing adversity. Resilience often is investigated in children who have experienced abuse and/or neglect for substantial periods of time in early life. More generally, resilience can be the positive adaptation to one's environment through intelligence, resourcefulness, and good mental health [1].

Description

Resilience is a difficult term to define with precision. Research on such a broad psychosocial construct has led to many different theories and ideas about what developmental influences lead to resilience in children. Overall, the concept of resilience should include many dynamics such as living environment, genetic influence, parenting, coping skills, intelligence, academic achievement, and protective factors. In most cases children are considered resilient only if they have experienced some major life stressor, current or past hazard, or a demonstrable risk [2]. However, children who do not have such traumatic experiences also have shown resilience from ordinary life stressors, such as divorce [1].

Psychologists began researching resilience among children in the 1970s [2]. They began by studying the genetic and experiential differences between children in various adverse situations. These studies helped develop new ideas about the abilities disadvantaged children develop to lead more functional and healthy lives. Current research is focusing on biological factors and psychosocial factors that play a larger role in the development of resilience than was first expected [1, 3, 4].

It is not entirely clear to researchers why some children who have experienced extreme adversity have developmental advantages over others who experience similar situations. One consideration is biological. Adverse experiences are thought to affect neural plasticity, reducing the ability of the brain to function effectively [3]. Also, genetic adaptations are a consideration since it is clear to researchers that some families develop resilience better than others [3]. However, this research is still in its infancy and longitudinal designs must be employed in order to accurately test these relationships.

Examples of environmental risk variables often included in research on childhood resilience include poverty, parental psychopathology, poor parenting skills, negative parent–child interactions, limited maternal education, minority status, stressful life events, and large family size [1]. Interestingly, several researchers are finding that the *number* of risk factors is more predictive of developing psychopathology than the presence of any particular risk factor (e.g., see [1]).

Protective factors that contribute to the development of resilience in children include emotional regulation, formation of positive relationships, intelligence, successful academic performance, positive parenting behaviors, and coping skills [2, 4, 5]. In early life, positive parenting is important to the development of a high functioning individual and research has shown that children who received better parenting had higher self-esteem, better test scores, and greater conscientiousness than those who did not [2]. However, there is a danger in adolescence when youth who have developed strong resilience

participate in risky behaviors because they feel they are invincible to certain problems [5]; that is, they become over-confident in their abilities to combat adversity.

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Resiliency

►Self-care

Resistant Attachment

►Ambivalent Attachment

Respondent Conditioning

►Conditioning

Response Cost

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Synonyms

Loss of privileges; Loss of reinforcement

Definition

A loss of reinforcers following the occurrence of a behavior resulting in a decrease in the future likelihood of that behavior.

Description

B.F. Skinner described the basic principles of behavior and behavior change including reinforcement, extinction, and punishment. Punishment is defined as a consequence of behavior that results in a future decrease of the frequency of the behavior. There are two types of punishment: the presentation of an aversive stimulus and the removal of a positive reinforcer. Response cost is the removal of a positive reinforcer contingent on the occurrence of a behavior and results in a decrease in the future frequency of the behavior [1, 2].

One common situation in which a response cost is used to decrease undesired behavior is in a token economy behavior change system. Tokens are exchangeable for positive reinforcers and delivered to an individual contingent on desired behavior. A response cost is in effect when tokens are removed contingent on the occurrence of undesired behavior.

A commonplace example of a response cost is a ticket issued by a police officer for offenses such as speeding while driving. The removal of money (a positive reinforcer) contingent on the occurrence of the undesired behavior may decrease the future likelihood of the behavior (i.e., speeding).

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Response Generalization

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Synonyms

Response induction; Response variability

Definition

In the operant conditioning of B.F. Skinner, response generalization refers to the spreading of the effects of a behavior strengthening contingency to other responses that are similar to the target response that resulted in the behavior strengthening consequence.

Description

Response generalization is said to have occurred if a procedure that increases the likelihood of a target operant response causes an increase of other responses that resemble the target response [1]. The other responses to which response generalization spreads need not bear physical or topographical similarity to the reinforced operant. The other responses that are strengthened in response generalization are typically members of the same operant response class; an operant response class is a grouping of operants that share a common function such as putting on a coat, folding your arms and rubbing your hands over your arms and stamping your feet; all of these operants serve the same function of trying to keep warm [7]. Rats that were reinforced for running a maze but subsequently put in a water maze showed improved and faster maze swimming; strengthening maze running generalized into strengthened maze swimming [2, 5].

Response generalization has to be distinguished from stimulus generalization; the latter is a process in which reinforcing a response in the presence of a specific stimulus increases the likelihood the same response will occur in the presence of similar stimulus events. In response generalization, the response varies while the stimulus conditions remain unchanged, whereas in stimulus generalization the response stays the same but the stimulus conditions change [6].

Response generalization is one of the sources of variation in responding that is the basis for shaping a novel operant. In general, the more a response is subject to continuous reinforcement, in which every occurrence of the target response is reinforced, the response is strengthened but the response also becomes more stereotyped. That is, a response often shows less variability the more times it is reinforced. But if an operant is then reinforced intermittently or if reinforcement is discontinued as in extinction, operant variability increases. If reinforcement is then made contingent on one of the variations, the new variation is subsequently strengthened and itself shows additional response generalization. After several such periods of reinforcement followed by intermittent reinforcement or extinction, entirely novel behavior is observed [3, 6, 7].

Response generalization occurs after the reinforcement of either animal or human behavior; in particular response generalization as been observed to occur with typical operants such as lever pressing, key pecking and maze running by animals, as noted previously. Among humans, response generalization has been observed in the midst of learning new verbal behaviors [2]. In another instance, a study conducted in 1991 observed response generalization after pizza delivery drivers were given training to increase seat belt use. Training consisted of meetings with drivers in which seat belt use was emphasized and having drivers make an overt commitment to seat belt use. The delivery vehicles were subsequently equipped with monitors that enabled trainers to record seat belt usage and drivers were provided feedback pertaining to the frequency of seat belt use. As expected, the frequency of seat belt use increased as well as the appropriate use of turn signals, which was not part of the intervention. The seat belt training led to response generalization of increased turn signal use, and both behaviors are instances of a response class of safe driving behaviors [2, 4].

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Response Induction

►Response Generalization

Response Variability

►Response Generalization

Response-to-Intervention

►Early Intervention

Restitution

►Overcorrection
►Positive Practice

Restlessness

►Hyperactivity

Restoril®

Synonyms
Temazepam

Definition
A prescription medication FDA approved for the short-term treatment of insomnia (difficulty sleeping).

Description
This medication is a benzodiazepine, a central nervous system depressant, available in capsules.

The recommended starting dose for this medication is 15 mg or 30 mg taken once a day at bedtime. Maximum suggested dose is 30 mg a day. This medication should only be taken as directed by a doctor and is usually taken only for 7–10 days. This medication may become habit forming.

Some side effects are listed here: drowsiness, dizziness, confusion, memory impairment, headache, amnesia, diarrhea, and blurred vision. Certain side effects may go away during treatment.

Relevance to Childhood Development
Restoril® is not FDA approved for use in children younger than 18 years old.

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Restricted Environmental Stimulation

►Sensory Deprivation

Restrictive Play

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Synonyms
Limited play; Stereotypic play

Definition
Restrictive play is a category of behavior representative of continuous, preoccupied interaction with a specific object.

Description
Individuals diagnosed with autism spectrum disorders typically exhibit restrictive play skills [1]. These restrictions result in the individual engaging in bizarre and obsessive behaviors while interacting with objects or toys [2]. While engaging in these behaviors, the individual is completely absorbed in the object while all other items, activities, and individuals in the environment are excluded from their attention. Examples include: repeatedly watching the same movie, dismantling objects, lining up items, spinning a block, opening or closing doors, or banging objects [5]. These behaviors are repetitive in nature and do not resemble the appropriate function for the object. Consistently engaging in restrictive play behaviors results in limited verbal and nonverbal exchanges, minimal toy sharing, and solitary play in a social environment. Individuals with restrictive play also exhibit aversions to change in routines and familiar environments [3]. In addition to these behaviors, individuals may engage in other non-restrictive behaviors including ritualistic behaviors, stereotypical behaviors (e.g., hand flapping), and limited joint attention (e.g., concentrating on a common event or object) [6].

Without treatment, individuals with restrictive play develop fixations and obsessions with items or activities and miss opportunities to develop necessary play skills such as parallel, associative, cooperative, sociodramatic, and rough-and-tumble play [2]. Deficits in these skill areas often result in social isolation and rejection from peers [6], thereby increasing restrictive play and creating an ongoing cycle.

Behavioral interventions are an effective course to treating the repetitive and obsessive behaviors present in restrictive play. Treatment for these behaviors includes redirecting, prompting and modeling procedures [5]. Repetitive, inappropriate behaviors exhibited are replaced by physical support through modeling and prompting the individual to engage in the correct pretend play behavior. For example, banging a toy car onto the ground is replaced by hand over hand guidance in rolling the car over the ground. Visual support procedures – utilizing physical examples of the behavior paired with pictures, icons, or words – are also effective [4]. Peer models can also be introduced to engage the restrictive play individual in appropriate play skills through imitation and modeling.

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Retardation, Degrees of

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Synonyms

Severity of mental retardation

Definition

"Degrees of retardation" is a term used to describe the current and/or predicted functioning level of an individual with mental retardation. The most widely used classification system in the professional literature describes four levels of mental retardation: mild, moderate, severe, and profound. Educators historically have used a classification system that includes terms such as educable mentally handicapped (EMH) or trainable mentally handicapped (TMH); however, these terms have generally been eliminated in special education.

Description

Mental retardation is a condition manifested in the developmental period which consists of two necessary components: subaverage general intellectual functioning and concurrent deficits in adaptive functioning in areas such as communication, self-care, functional academic skills, social/interpersonal skills, etc. The term "mental retardation" has been replaced with the term "intellectual disability" in some professional communities. Degrees of mental retardation describe the level at which an individual would be expected to function given the extent of impairment. More recently, less emphasis has been placed on the degree of impairment and more on the level and amount of support needed for daily living of individuals with this condition.

Mild retardation describes approximately 85% of individuals affected by mental retardation. The expected subaverage intellectual quotient (IQ) range is 50–55 to approximately 70. Individuals within this range often acquire the skills comparable to those of a typical sixth grader and some may be able to complete education through high school at a decelerated pace. They are likely to be able to complete activities of daily living (ADLs) and may be able to live independently with the appropriate support.

Moderate retardation describes approximately 10% of individuals affected by mental retardation. The expected IQ range is 35–40 to 50–55. Individuals functioning at this level often acquire communication skills in childhood and attend to their own personal care (with moderate supervision); however, they function well below peers in terms of academic skill attainment. These individuals typically benefit from living in a supervised setting and can perform semiskilled work under appropriate supervision.

Severe retardation describes approximately 3–4% of individuals affected by mental retardation and includes individuals whose cognitive functioning is measured to be within the range of 20–25 to 35–40. The school curriculum for individuals functioning within this range often includes functional academic skills, as well as life skills which support a meaningful transition from school to adult living. These individuals may be able to master some basic self-care skills; however, they typically require a supervised living situation.

Profound retardation describes approximately 1–2% of individuals affected by retardation. The expected IQ

range is 20–25 and below. Individuals with this designation typically have an identifiable cause for their retardation and have other health conditions and/or disabilities as well. A highly structured environment with supervision and assistance in daily living skills is generally necessary in fostering optimal quality of life for these individuals.

Relevance to Childhood Development

Mental retardation is an enduring condition and although adaptive functioning generally improves in all but the most impaired individuals, the disability is often evident throughout an individual's life. Age of identification, etiology, and developmental progress varies depending on the severity of impairment. An individual's level of impairment will become more evident as he/she advances in age and the gap between his/her functioning and that of same-aged peers widens.

Typically, a child with mild mental retardation will not be identified as such until approximately the first or second grade, when academic expectations are sharply increased. Accordingly, children with moderate mental retardation will likely be identified before ever beginning school since their impairments are more severe than those with mild mental retardation. Children with severe and profound mental retardation will likely be identifiable as such well before early childhood, typically between birth and toddlerhood.

As the degrees of mental retardation progress from mild to profound, so does the likelihood that an identifiable cause for the disability is known. For instance, only about 50% of individuals with mild mental retardation have a known cause for their impairment while almost all individuals with severe to profound mental retardation have a known cause for their condition. Factors such as genetics, including chromosomal abnormalities, acquired syndromes, developmental factors, and the influence of the environment and sociocultural context can all play a role in the etiology of any degree of mental retardation.

Infancy, toddlerhood, and early childhood will be most prototypical for a child with mild mental retardation and less so for a child with more severe forms of mental retardation. In fact, the stages of development for a child with mild mental retardation typically progress similarly as a child without mental retardation. These children often communicate and play like other children and tend to display similar levels of developmental functioning. It is not until entering school that these children are identified because academic and social demands increase significantly at this time. Adolescence often proves to be a challenging stage of development for children with mild and moderate mental retardation because their impairment is such that they often cannot perform the academic and social tasks demanded of them, but they are skilled enough to recognize that they are academically and socially delayed relative to their peers.

The entire lifespan is likely to be recognizably impaired for an individual with severe or profound mental retardation. There may be sensorimotor difficulties, significantly delayed speech and language skills, and significantly impaired social interactions. These children may never participate in a regular education classroom environment, instead beginning specialized education and training suited for their needs at a young age and continuing throughout life.

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Retention

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Synonyms

Memorization; Non-promotion

Definition

Retention is the process where students are held back from advancing to the next grade level and are required to repeat the grade just completed.

Description

Retention requires that a student repeat a grade rather than being promoted to the next grade level. Most commonly,

students are retained for failure to pass a standardized assessment measure, learning difficulties, or emotional immaturity. The assumption is that the act of retention will remedy any academic deficits or emotional immaturities found in these students [2].

Retention is most commonly regarded as an alternative to social promotion. Social promotion is a process by which children are promoted to the next grade level regardless of their ability to succeed academically. Both of these practices are heavily debated in the literature [1].

The majority of research on retention suggests that the practice is neither a beneficial nor an effective practice [2]. In fact, retention may actually harm academic and social adjustment. Studies demonstrate that those students who are retained are more likely to be retained again, drop out of school, and have problems with peer relationships and self-esteem. Likewise, these students are also more likely to engage in risk-taking behaviors including abusing drugs and alcohol, violence, and promiscuous sexual activity [3].

Some studies suggest that retaining a student early on in their academic career allows for positive effects socially and academically. However, these benefits seem to be only temporary, as only a few years after the retention these benefits are no longer apparent [5].

Relevance to Childhood Development

Despite the controversy associated with retention, the practice is still widely used and accepted in the United States. In fact each year, approximately 15% of students in the United States are retained. Of these students, males, minorities, inner-city children, and those from low socioeconomic status are more likely to be forced to repeat a grade [3, 4].

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Reticence

▶Shy Children

Reticular Activating System

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Synonyms

Reticular Activating System (RAS); Reticular formation

Definition

The RAS refers to a network of nerves and connections that originate in the superior portion of the brainstem which together serve the purpose of modulating attention and arousal [3].

Description

The RAS, also known as the reticular formation, refers to a network of nuclei and fibers that extend throughout the central portion of the brainstem from the medulla to the midbrain [1, 2]. While the RAS is described as the primary source/ site of brain activation (e.g. [4]), this is just one portion of the functional role the RAS plays. The superior portion of the RAS, which is based in the upper pons and extends into the midbrain, regulates arousal level and consciousness [1]. In contrast, the inferior portion of the RAS, which lies in the lower pons and medulla, tends to be primarily involved in motor and autonomic function [1].

Due to its direct and indirect connections throughout the system, lesions of the RAS may vary tremendously in terms of functional impact. Specifically, lesions of the RAS may lead to manifestations ranging from dysregulation of sleep in wakefulness and impaired attention to lethargy and/or coma and even death.

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Reticular Activating System (RAS)

►Reticular Activating System

Reticular Formation

►Reticular Activating System

Rett Syndrome

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Definition

Rett Syndrome (RS), according to the American Psychiatric Association (APA) [1], is a Pervasive Developmental Disorder (PDD) and as such it is characterized by substantial and pervasive reciprocal, social, communicative and behavioral impairments, which are qualitatively deviant based on the child's developmental level and mental age. The most notable difference between RS and the other PDDs, including Autism, Asperger's Disorder, Childhood Disintegrative Disorder, and PDD Not Otherwise Specified is that RS appears almost only in girls and is not evident from birth [1].

Description

Rett syndrome (RS) is a neurodevelopmental disorder that contributes significantly to severe intellectual disability in 1:10,000 to 1:23,000 females worldwide [2], making RS the second major cause of mental retardation in females, following Down syndrome [3]. RS was first recognized in 1966 by the pediatrician Andreas Rett [4], but increased awareness about the disorder in the English medical literature was brought by Hagberg and colleagues in 1983 [5].

In RS, deficits develop following a normal prenatal and perinatal period and after a period of apparently normal development from birth and until, at least, the fifth month of age. The onset after the fifth month of age is provided by the criteria set in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM-IV-TR) [1], even though others have estimated the onset of the disorder to be at the sixth [6] or even the seventh month of age [5].

Generally the onset of the disorder is estimated to be before the age of 4 years, indicated by a deceleration in head growth, usually leading to microcephaly [1]. Other notable features of RS are the loss of purposeful and intended hand movements and hand skills between the 5th and the 13th month of age and the development of repetitive, stereotyped hand-washing, hand-wringing, clapping, flapping, or mouthing gestures. Interest in the social environment deteriorates, as well, within the first years of onset; deficits in the child's gait and trunk movements are also present [1]. Finally, impairment in expressive and receptive language development along with severe psychomotor retardation are also characteristic [1].

In addition, according to Hagberg and colleagues [5], developmental stagnation after a period of apparently normal development is followed by a rapid deterioration of the mental status of the child, leading to dementia with autistic features. However, a period with a relatively stable mental status follows after the onset of RS, but it is marked by the emergence of other neurological abnormalities, including spasticity of the lower limbs and epilepsy [5].

Additional supportive criteria for the diagnosis of RS, which were developed to assist the diagnosis and describe the phenotype of the condition, include: breathing dysfunctions such as episodic hyperventilation or breath-holding [7], EEG abnormalities, seizures, peripheral vasomotor disturbance, scoliosis or kyphosis, growth retardation, and hypotrophic small feet [4, 6]. Furthermore, bruxism, impaired sleeping patterns, air swallowing or abdominal bloating, changed sensitivity to pain, inexplicable episodes of laughing [7], as well as other neurological abnormalities, such as dystonia and Parkinsonism [8] might be present .

Finally, the diagnosis of RS is excluded if there is evidence of a storage disorder, retinopathy, cataract, or optic atrophy, an identifiable metabolic or neurodegenerative disorder, an acquired neurological disorder, evidence of perinatal or postnatal brain injury [6] due to anoxia, ischemia or trauma [10], infantile autism [9, 10], Angelman (or Happy Puppet) syndrome, congenital metabolic defects [10], or untreated phenylketonuria or tuberous sclerosis [9].

Suggested Staging System

Hagberg and Witt-Engerström [9] suggested a four-stage model of describing the developmental course of RS, in order to facilitate the description of the disorder from infancy to adolescence. According to their staging system, Stage I, named the "Early onset stagnation stage", starting

between the 6th and the 18th month of life, is characterized by delayed developmental progress following an apparently normal prenatal, perinatal and early psychomotor development. During this stage decelerating head growth, and diminished play, communication, and eye contact are evident. The symptoms during this period, however, are nonspecific, and diagnosis is usually not made before Stage II, the "Rapid destructive stage", when stagnation of development is more obvious [9].

Stage II typically covers the ages between 1 and 3 or 4 years of life and during this phase individuals experience rapid personality change [7], rapid loss of social interaction, communicative skills and loss of acquired language [9]. Loss of hand skills, development of hand stereotypies, and emergence of autistic symptoms, dementia, irregular breathing, and seizures are also characteristic features of Stage II [9].

In Stage III, the "Pseudostationary stage", which covers the preschool to the early school years, communicative skills improve, autistic features tend to resolve and mood stabilizes [7]. However, neuromotor problems slowly worsen, rigidity becomes more obvious, significant hand dyspraxia develops and during this stage even more females develop epileptic seizures. It is, nevertheless, noted that some individuals may remain in this stage most of their lifetime [9].

For those who will move to Stage IV, the "Late motor deterioration stage" covering the teenage to early adult years, however, motor deterioration is the main feature. Individuals who were able to walk now lose this ability and some become wheelchair-bound. Scoliosis becomes severe and trophic foot disturbances associated with persistent growth retardation become apparent. On the other hand, during Stage IV epilepsy may become less problematic and emotional contact may show some improvement, but intellectual disability becomes more severe [9].

Etiology

Approximately 99.5% of RS cases are sporadic, not following a familial pattern of occurrence, thus making the identification of the cause of the syndrome difficult to establish. Initial observations indicating the inheritance through maternal lines, however, associated with the findings of nonrandom patterns of XCI in obligate carrier females suggested that RS is an X-linked dominant condition caused by mutations in a gene that undergoes X-inactivation [8].

In 1999, Amir and colleagues [11] were the first to denote that RS is caused by mutations in X-linked *MECP2,* encoding methyl-CpG-binging protein 2; further research showed that the majority of RS cases (approximately 90–95%) involve such mutation in the *MECP2* gene on the x-chromosome [2, 4, 6, 11]. This mutation appears to give a growth disadvantage to neuronal and lymphoblast cells, which leads in skewing of X-inactivation, something which also contributes to the large degree of phenotypic variation. Also, recent evidence collected from studies on mice and rat models suggests that *MECP2* may have a role in regulating neuronal activity dependent expression of specific genes such as Hairy2a in Xenopus and Bdnf [6]. However, consistent with the sporadic occurrence of RS most mutations occur de novo, making the investigation of the exact mechanism by which the mutation occurs in the DNA of RS individuals, but also the mechanism by which loss of *MECP2* function results in the pathogenesis of RS, even more difficult [12].

In addition to the mutation in *MECP2*, it seems that at least a small proportion of atypical cases may result from mutations in the X-linked gene cyclin-dependent kinaselike 5 (*CDKL5)*, alterations in which were found to cause early-onset epilepsy and infantile spasms with severe mental retardation. Nonetheless, the relationship between *MECP2* and *CDKL5*, and whether they cause RS through the same or different mechanisms is yet to be established [6].

RS in Males

Although RS was initially thought to be a disorder exclusively affecting females, a number of males with a Rett-like phenotype have been reported, including males who have a XXY karyotype, who are mosaic for severe mutations, and who may have milder mutations. For example, Dayer and colleagues [13] report a case of one male displaying RS symptomatology, providing detailed developmental descriptions of the child's condition, whose mother, however, was heterozygous for the mutation in the *MECP2* gene while having normal intellectual ability and no evident neurological symptoms.

MECP2 mutations that cause classic RS in females typically lead to neonatal encephalopathy and death in the first year of life in males with a normal karyotype. However, the same mutations may result in an RS phenotype in males with Klinefelter syndrome (47, XXY) or somatic mosaicism. Moreover, some of these mutations have been reported in males with classic RS and a normal karyotype, suggesting that genetic modifiers suppress the infantile lethality typically seen in males with loss-of-function *MECP2* mutations. On the other hand, some *MECP2* mutations that do not cause RS in females can cause moderate, nonspecific to profound mental retardation or other psychiatric disorders in males. Deficits in

language and motor skills, obesity, autistic features, and epilepsy are also common in this category of mutations [3, 13]. There are also rare occurrences of *CDKL5* mutations in males suffering from severe mental retardation, infantile spasms, or early-onset epilepsy [14].

Management

RS is a lifelong condition with no treatment protocols currently available, thus planning appropriate management protocols is warranted. Thorough assessment of RS children by a multidisciplinary team should be the first step in the preparation of efficient and individualized management plans, taking into consideration the specific phenotypic and personal needs of every RS child.

Management interventions should include psychosocial support for the families, development of appropriate education plans, and assessment of available community resources. In addition, along with the pharmacological treatments, which may lead to an improvement in the person's wellbeing and quality of life, reduction in the episodes of hyperventilation, and improvement of sleep dysfunction, some other practical strategies should also be applied with an aim to minimize, to the degree possible, further deterioration [6].

For example, decreasing repetitive purposeless hand movements can be achieved by the use of arm restraints, such as soft elbow splints, which can also be helpful in training specific hand skills, such as self feeding. These methods can also be helpful in decreasing agitation and self injurious behavior. Regarding verbal expressive language, alternative forms of communication may be used, including communication boards, technical devices, and switch activated systems. These can also be used for making choices and facilitate environmental access.

Relevance to Childhood Development

RS is a disorder usually first diagnosed in childhood [1]. The severity of symptoms is evident across cognitive, communication, motor, orthopedic, gastroenterological, respiratory, and sleep domains; and research has shown that great heterogeneity in symptoms occurs, not due to genetic/physiological differences alone but due to life experiences as well. Genetic testing alone is not sufficient to fully describe each person's unique phenotype. Thus, genetic assessment should be supplemented with a battery of measures that not only assess observable behaviors but that can be linked back to assessed gene expression. In addition, measures of communication, social skills, adaptive skills, and communication are warranted and should constitute parts of an overall multidisciplinary RS assessment protocol [14].

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Revised Children's Manifest Anxiety Scale: Second Edition

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Synonyms

Anxiety; Symptoms checklists

Definition

The *Revised Children's Manifest Anxiety Scale: Second Edition* (RCMAS-2) is an update to the Revised Children's Manifest Anxiety Scale (RCMAS). It is used to help mental health professionals identify children and adolescents between the ages of 6 and 19 who are experiencing symptoms consistent with anxiety disorders [1, 3].

Description

The RCMAS-2 is a 49-item self-report measure of anxiety for children and adolescents between the ages of 6 and 19. It was written at a second grade reading level and there is an audio version available. The items on the RCMAS-2 can be used to calculate a Total Anxiety Score, three scale scores, and two validity indices. One of the validity indices – Inconsistent Responding Index – assesses whether or not the child/adolescent attended to the items on the RCMAS-2. The other validity index – Defensiveness – is an update to the RCMAS Lie scale [3]. It was designed to assess whether the examinee was presenting him or herself in an overly positive manner [1, 3]. The three scales – Physiological Anxiety, Worry, and Social Anxiety – assess different subtypes of anxiety [1, 4].

In addition to the standard form, the RCMAS-2 has a short form. The short form consists of the first ten items of the RCMAS-2 and can be used to screen children and adolescents who may benefit from additional evaluation or intervention [3].

The RCMAS-2 was recently published; consequently, there is little research on it. In the manual for the RCMAS-2, the authors report there is a high correlation between the RCMAS-2 and the RCMAS, so the research on the RCMAS may extend to the RCMAS-2 [3].

Scoring & Psychometrics

The RCMAS-2 can be scored by hand in less than 10 min. The raw scores for the Total Anxiety Scale are transformed into T scores while the raw score for the scale scores are transformed into scaled scores. There are three sets of norms, each representing different age groups [1, 3].

The RCMAS-2 was standardized on 2,300 children and adolescents between the ages of six and 19. Approximately 50% of the children in the standardization sample were female [3].

Relevance to Childhood Development

The RCMAS-2 can be used to screen children and adolescents for symptoms of anxiety. It can also be used as part of a comprehensive psychological evaluation.

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Reward Discounting

►Academic Delay of Gratification

Rey Complex Figure Test

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Synonyms

Complex figure; Rey figure; Rey-Osterrieth

Definition

A neuropsychological test used to assess visuospatial/constructional ability and visual memory.

Description

The complex figure task devised by Rey in 1941 [1] is considered to be one of the most widely used neuropsychological tests because of its ease of administration and the variety of cognitive processes which it can potentially be used to assess. The original purpose of the test was to assess visuospatial/constructional ability and visual memory ability in brain injured individuals. However, it is commonly used to assess a broader range of cognitive abilities including planning, organization and fine motor skills. Since the original drawing, there have been a number of elaborations of the test, the most commonly

known of these is the Rey-Osterrieth Complex figure and the Taylor alternate version [2].

Administration

Each version of the complex figure test is administered using the same general format. The individual is shown a card with the figure printed on it and asked to copy the figure as carefully as possible on to a blank piece of paper. Then, after a 2 min delay and again after a 30 min delay, and without prior warning, the participant is asked to reproduce the figure from memory [3]. It has been reported that minor variations in length of delay does not have a significant effect on the production of the figure [3] because, for most people, the amount of detail that is forgotten occurs in the first few minutes following the initial copying of the figure [3].

There are various methods of scoring for the ROF depending on the particular version that has been used, and these are outlined in Spreen and Struss [2]. However, for the traditional ROF, each of the figures produced is scored separately on 18 different scoring units [2]. Each unit receives a score between 0–2 and is considered both in terms of accuracy and position relative to the whole design. For example, two points are given if the unit is totally correct and placed correctly, one point is given if the unit is correct but incorrectly placed, or distorted but correctly placed, half a point is given if the unit is poorly place and distorted and no points are given if the unit is missing [2]. Total score ranges from 0–36. Some researchers use an administration system in which they hand the participant a different colored pen to use every 30 s. This is done so that they can see the order in which the different units of the figure were completed. This system of administration can be used as a measure of planning.

Age and intellectual ability influence the performance on the ROF [2]. Therefore, the ROF can be use in adult populations to assess brain impairment. For example, patients with frontal lesions have been reported as having more difficulty planning the task. On the other hand, patients with hemineglect may only partially copy the figure. (Hemineglect refers to an impairments in functioning that may occur after damage to one side or hemisphere of the brain, resulting in a deficit in attention to, and awareness of, one side of space. This is lack of attention or awareness is usually contralateral to the side of damage.)

Relevance to Childhood Development

The ability to produce the ROF systematically develops with age [4]. Younger children tend to draw the figure in a piecemeal manner based on copying around the perimeter of the figure, rather than reproducing the base rectangle as the starting point. However, by about 13 years of age, a more holistic approach to the copy of the figure is evident, with the rectangle as the base strategy being utilized [4]. By age 9 most children are able to accurately complete the ROF and reproduce it with about 75% accuracy [4]. Because the ability to produce the ROF systematically develops in normally functioning children, the ROF is able to be used in clinical contexts with children who have difficulties, including developmental delays or medical conditions. For example, children with closed head injury are likely to make many more mistakes than those without head injury, and are also more likely to use a piecemeal approach [4]. Studies on children with Attention Deficit Hyperactivity Disorder indicate that their productions of the ROF are often poorly organized, and they perform poorly on recall of the figure [4].

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Rey Figure

►Rey Complex Figure Test

Reynolds Adolescent Depression Scale 2

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Synonyms

RADS; RADS-2

Definition

The Reynolds Adolescent Depression Scale 2 (RADS-2) is an updated version of the original RADS, a paper-and-pencil self-report measure of the severity of depressive symptoms in adolescents [1].

Description and Relevance to Childhood Development

Adolescence is a time of social and physical development and self-discovery, but for some, it is an arduous transitional period. Social and academic pressures can overwhelm some adolescents, and can sometimes lead to a decrease in self-esteem and an increase in emotional disturbances. Depression is one of the most frequently diagnosed mental disorders in the United States [4], with about 20% of adolescents experiencing a depressive episode before they reach adulthood. Depression ranges from mild to severe and can include feelings of sadness, crying, loneliness, dysphoria, somatic complaints, suicidal ideation, loss of motivation and/or pleasure, and apathy. Awareness of these variations in depressive symptomatology is important for all professionals working with children and adolescents. If left untreated, depression can lead to serious and sometimes fatal consequences [3].

Psychologist William M. Reynolds began the development of the Reynolds Adolescent Depression Scale (RADS; [2]) in 1981 in order to assess the severity of depressive symptoms in adolescents in both clinical and school settings. Prior to the RADS, there was no scale measuring the severity of depressive symptomatology in adolescents. The RADS-2 [1] expands the initial RADS by defining four factorially-derived subscales to explain various components of depression (Dysphoric Mood, Anhedonia/Negative Affect, Negative Self Evaluation, and Somatic Complaints). The second edition also extends the age range, is restandardized (n = 3,300) based on census data from the year 2000, includes a representative number of the Hispanic population, provides standard T scores and percentile ranks for comparison, includes a test booklet for hand scoring, and has an updated manual with extensive psychometric information and interpretive guidance. It is important to note, however, that the RADS-2 is not a formal classification measure; therefore, it does not assess other types of psychopathology often comorbid with depression, such as suicidal ideation [1, 5].

The RADS-2 is a 30-item, easily administered paper-and-pencil screening measure evaluating broad domains of depressive symptoms. The test requires a third grade reading level and is used with adolescents 11 to 20 years old. Sentences are short and easy to read. Each item measures the frequency of a specific symptom of depression. Adolescents are asked to endorse how they "usually feel" using a 4-point Likert response format, where *1 = almost never, 2 = hardly ever, 3 = sometimes,* and *4 = most of the time.* Seven items are reversed scored to reduce response bias. Scores range from 30–120, with high scores on the Depression Total scale indicating a higher frequency of depressive symptoms. The RADS-2 does not provide a formal diagnosis of depression; however, the items are consistent with current *DSM* and *ICD* diagnostic criteria, and the measure provides an empirically based score that indicates the clinical severity of depression symptoms in adolescents [1]. Each of the subscales can be totaled for a more detailed picture of the symptoms in each of the four domains. The Dysphoric Mood subscale on the RADS-2 contains eight items that evaluate sadness, crying behavior, loneliness, irritability, worry, and self-pity. The Anhedonia/Negative Affect subscale contains seven reversed-scored items that appraise affect and engagement in pleasurable activities. The Negative Self-Evaluation subscale contains eight items evaluating feelings of low self-worth, self-denigration, thoughts of self-harm, and thoughts that no one cares. The Somatic Complaints subscale contains seven items and assesses somatic (i.e., physical) complaints about the self such as anger, stomachaches, feeling sick, fatigue, sleep disturbance, boredom, and dissatisfaction. High scores on any of the subscales represent a higher level of pathology.

The RADS-2 demonstrates excellent psychometric properties as evidenced by high internal consistency, test-retest reliability, and validity estimates [1]. Internal consistency reliability for the RADS-2 total scale was .93 for the total school sample; internal consistency for the subscales of the RADS-2 ranged from .80 to .87 [1]. Test-retest reliability for the Total Scale was reported to be .85, with the subscales ranging from .77 to .84. Validity has been established for the RADS-2 as evidenced by strong relationships between the RADS-2 and clinical measures of depression (e.g., Hamilton Depression Rating Scale), moderate relationships among the RADS-2 and related constructs such as anxiety and loneliness, and weak relationships among the RADS-2 and measures of intelligence, social desirability, and school achievement.

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Reynolds Child Depression Scale

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Synonyms

RCDS

Definition

The Reynolds Child Depression Scale (RCDS) is a 30-item self-report paper and pencil survey assessing the frequency of depressive symptoms in children ages 8–12.

Description and Relevance to Childhood Development

Depression is one of the most frequently diagnosed mental illnesses in the U.S. [3, 4], with nearly five percent of children and adolescents suffering from depression at any one point in time [2]. This disorder can often go without notice, as it is often conceptualized as a quiet disorder with symptoms such as sadness and social withdrawal, unlike other childhood disorders (e.g., ADHD) that may present with overt behavioral problems. However, some children suffering from depression will act out in school or at home, so it is important to pay close attention to the child's overall behavior in order to know if they are suffering from depressive symptoms.

Like adolescent and adult depression, childhood depression is more than just feeling down once in a while. Rather, it is characterized by symptoms such as frequent sadness or crying, feelings of hopelessness, social withdrawal or isolation, low self-esteem, and stomachaches or headaches. Depression varies in level of severity, with some people reporting mild depressive symptoms (e.g., feeling down), and others reporting more severe symptoms (e.g., suicidal ideation and self-injurious behaviors; (2)). However, if left untreated, mild symptoms can lead to more severe symptoms, highlighting the importance of assessment and treatment in the presence of any type of depressive symptoms.

The Reynolds Child Depression Scale (RCDS; 1989), developed by William Reynolds, is a 30-item self-report measure of depression that can be used to assess frequency of depressive symptomatology in children. The scale was developed based on the symptom criteria as delineated in the DSM-III and the research diagnostic criteria (RDC; [1]). Item criteria were also checked against the DSM-III-R upon its release. The scale uses a Likert-style response format (*1=almost never, 2=sometimes, 3=a lot of the time, 4=all the time*) for 29 of the items, and a 1 through 5 scale using faces representing a range of emotions, from sad to happy, for the final item. There are seven reverse-scored items (e.g., I feel happy). Children are asked to answer the questions based on how they have felt in the past two weeks. A high score on the RCDS is representative of higher depressive symptomatology, with scores ranging from 30 to 121. The scale is written at a second-grade reading level, takes about 10 min to complete, and is primarily used for children in grades 3 through 6 (ages 8 through 12); however, it is recommended that children in grades 3 and 4 (ages 8 and 9) have the items read aloud to them [1].

The RCDS is not a diagnostic tool as it merely provides information regarding the frequency of the child's depressive symptoms. It does provide a cutoff score that can be used to identify a child as depressed or non-depressed; however, this score should not be used alone for diagnostic purposes [1].

Critical items are said to distinguish depressed children from non-depressed children. The six critical items on the RCDS resulted in significantly different responses for depressed versus non-depressed children. Depressed children were more likely than non-depressed children to endorse the critical items (to answer *all the time* on items 6, 9, 12, 13, and 20, and *a lot of the time* or *all the time* on item 14). These six items focused on withdrawal, isolation, self-injurious thinking, and disliking one's self, all symptoms of major depression [1].

This scale was subjected to rigorous field testing throughout the 1980s in order to obtain evidence for psychometric properties. Internal consistency has been shown through Cronbach's alphas of 0.88 and above, found consistently in studies across the world [1, 5, 6]. The measure is shown to be psychometrically sound and content valid due to high item-total scale correlations (most items in the 0.40–0.50 range; [1]). Test-retest reliability coefficients have ranged from 0.66 in one study with students from Barcelona [5] to 0.82 in another study with students from the Midwest [1]. Criterion-related validity was shown through a correlation of 0.84 between the RCDS and the

Children's Depression Rating Scale-Revised [1]. Convergent validity was shown through moderately high correlations between the RCDS and other measures of depression, self-esteem, and anxiety. Discriminant validity was evidenced by a lack of relationship between depression and measures of academic achievement and ability [1].

The RCDS provides researchers with an easily understood self-report measure of depression that has been validated through research studies across the world. This scale is a valuable tool for clinicians and researchers alike, as it can identify the frequency of depressive symptomatology in children, and help distinguish between depressed and non-depressed children (although a formal interview would be needed for a final diagnosis of depression).

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Rey-Osterrieth

►Rey Complex Figure Test

RFT

►Relational Frame Theory

Right Hemisphere Learning Disability

►Nonverbal Learning Disability

Right Hemisphere Syndromes

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Definition

Knowledge of prevalence and patterns of right hemisphere deficits appears to be incomplete. In fact, a descriptive definition of right hemisphere syndrome and consistent terminology would assist in enhancing communication and providing services for this set of signs and symptoms. The most common right hemisphere syndromes include right hemisphere dysfunction, nonverbal learning disabilities, and Asperger's syndrome.

Description

The right hemisphere is responsible for visual data storage, recognition of shapes and forms, spatial perception, and copying and drawing geometric shapes and representational pictures. It also excels in metric angle judgments and linear arithmetic problem solving [6]. While it may appear to be superior to the left hemisphere in regard to attention capacity, this is merely due to the right hemisphere's ability to integrate complex, nonlinear information quickly. Right hemisphere syndromes include right hemisphere dysfunction, nonverbal learning disabilities, and Asperger's syndrome.

Right Hemisphere Dysfunction

Ardila and Ostrosky-Solis [1] first presented the concept of right hemisphere dysfunction in the mid-1980s. The authors indicated that the right hemisphere dysfunction produced additional symptoms not usually seen in nonverbal learning disabilities. They indicated that there were deficits related to the rhythm, stress, and intonation of connected speech. These authors also indicated that patients may have more significant deficits in frontal lobe functioning with regard to planning and organization, as well as tactile and spatial deficits.

In 1989, Pimental and Kingsbury looked at the many different classifications that had been presented for right hemisphere dysfunction [7]. The main features of right hemisphere dysfunction include: Fluent speech that appears illogical and loosely generalized; difficulty ordering, organizing, and understanding complex situations; verbal comprehension may be poorly developed as a result of literal interpretation; difficulty dealing with speech intonation resulting in monotone speech; failure

to stay alert; perceptual deficits; spatial organization, as well as visuo-spatial memory, and slowed reaction times.

Many descriptions have been given of children with social and emotional issues. These descriptions associate the child's lack of social navigational skills and their poorly developed spatial and mathematical skills. Researchers have taken many different approaches to understanding these deficits and have come up with many different classification terms such as, "minimal brain dysfunction," "nonverbal learning disability," "developmental learning disability of the right hemisphere," "social and emotional learning disability," and "developmental right hemisphere syndrome" [10]. All of these terms have been developed under the context of right hemisphere dysfunction.

Two syndromes discussed in the literature related to right hemisphere dysfunction are nonverbal learning disability syndrome and Asperger's syndrome.

Nonverbal Learning Disabilities

Nonverbal Learning Disability (NLD) is a more recent syndrome being researched. Although a few publications have been done on the syndrome, many mental health professionals are unfamiliar with it. The syndrome is not recognized by federal special education law, which, more than likely, classifies children with the specific symptoms as "Other Health Impaired" [8]. Some children may also be more specifically classified as orthopedically handicapped, learning disabled, or emotionally disturbed. These classifications are appropriate for children who have neurologically acquired NLD syndrome, but those who have acquired the syndrome through more common developmental cases may need a different classification.

Byron Rourke, in the early 1980s, identified a learning disability based on the right and left hemisphere functions. His model was expanded and revised in order to document the range and diversity of deficits in this disorder. Rourke [9] grouped the deficits into three major areas: Neuropsychological, academic, and social emotional/adaptive. Rourke believes that nonverbal learning disability syndrome is present, "at birth or shortly thereafter, and is not complicated by subsequent neurological disease, disorder, or dysfunction" ([9], p. 6).

A summary of the content and dynamics of NLD syndrome was summarized by Rourke in an edited text titled, "*Syndrome of Nonverbal Learning Disabilities*" in 1995. The model that represents these dynamics is shown on the following page:

Intellectual Functioning

On formal measures of intelligence, children with NLD syndrome will normally score higher on Verbal IQ than Performance IQ. This shows the incongruity between verbal, language-based cognitive abilities and nonverbal, visual-spatial cognitive abilities [8]. The greater the difference between scores, the more likely the diagnosis; small point differences can still be significant if there is evidence of the disorder in other domains.

Executive Functions

One of the primary impairments in NLD syndrome is executive functioning. This includes abstract reasoning, logical analysis, cognitive flexibility, and the ability to focus attention and/or redirect it [8]. Executive functioning deficits tend to be more prevalent in severe cases of nonverbal learning disabilities syndrome.

In addition, children with NLD syndrome have significant difficulties with cause-effect relationships and have deficiencies in appreciation of incongruities [10]. These problems tend to persist and only get worse as the child gets older.

Memory Functions

Children with NLD syndrome tend to have lower levels of nonverbal memory ability. Nonverbal tasks that are less complex, such as rote verbal capacities and rote verbal memory skills, tend to be well developed. Children who struggle with remembering complex verbal material probably did not understand the material when it was first presented. Those that struggle on more difficult memory and learning tasks support Rourke's hypothesis that children with NLD syndrome will be able to perform well only on memory and learning tasks that are confined and simple [8].

Language Functions

Receptive and expressive vocabulary measures usually see high performance levels from children with NLD syndrome. Children with right hemisphere dysfunction will perform poorly on measures of speech prosody and intonation [8]. Friends and peers will often complain that the child will dwell on boring topics; this is because the child relies on verbalization to carry them through their social interactions. With simple and repetitive speech, the child is seen as having restricted interests, which is one of the common features of Pervasive Developmental Disorders.

Visual-Spatial Abilities

Children with NLD syndrome perform low on measures of visual processing and visual-spatial abilities. They have difficulties with visual perception, visual-spatial cognitive abilities, and visual processing. Children with NLD syndrome will exhibit difficulties drawing or copying images and have poor handwriting skills. Despite the difficulties

that are manifested at first, as time passes and these difficulties are worked on, children with NLD syndrome will be able to improve their handwriting, ability to copy simple shapes, coloring, and pasting [10]. While simple visual-spatial abilities may improve, the more complex skills will only get worse as the child ages.

Sensory-Perceptual Ability and Motor Functioning as Related to the Left Side

Children with NLD syndrome will demonstrate difficulties with tactile discrimination, haptic discrimination (involves touch), and fine motor coordination [10]. Their fine motor skills and sensory skills are worse on the left side of their body, when compared to the right side. In addition to fine motor skill difficulty, children with NLD syndrome perform low on gross motor activities, such as playing sports. They lack the athleticism that their peers may possess and have a difficult time playing competitive games.

Educational and Academic Performance

Spelling and word recognition are easier than math for children with NLD syndrome. Math relies primarily on spatial and nonverbal concepts, which, as mentioned earlier, are areas in which children with NLD syndrome struggle. The more basic, mechanical aspects of academics are better understood than areas of academia that require more applied aspects. Reading comprehension and mathematical reasoning abilities are weaker than spelling, vocabulary, and simple math calculation abilities [8]. It is difficult for children with NLD syndrome to generate their own ideas, making it hard for them to write meaningful essays and papers.

Children with NLD syndrome also have poor time management skills. They tend to have a distorted sense of time when engaging in common activities. They may be unable to estimate the amount of time that has elapsed in a given activity, as well as the time of day.

Social Performance

NLD syndrome can significantly impair a child's social skills because they have poor "body language," facial expressions, and tone of voice abilities. Children with NLD syndrome tend to miss important social cues, further leading to deficits in social perception. They are unable to perceive social situations accurately and often respond incorrectly when spoken to. If the topic changes, they have problems adapting to the change in circumstances. Additionally, they have deficits in reasoning and generalization of knowledge.

Problems forming close relationships and meaningful friendships may not be perceived until late childhood or early adolescence. Establishing intimacy is very difficult for individuals with NLD syndrome, and Rourke [9] stated these problems are related to a lack of "tactile-perceptual and psychomotor prowess required for smooth affectional encounters" (p. 17).

When the child is young, they may often be seen as hyperactive. As the child ages, however; they move towards hypoactivity, which involves social withdrawal and social isolation. This increases the risk of the development of psychosocial disturbances, especially when related to internalization, in older childhood and adolescence [10].

The Relationship Between Nonverbal Learning Disabilities Syndrome and Asperger's Syndrome

There is evidence of a significant overlap in symptoms between NLD syndrome and Asperger's syndrome (AS). Children with either NLD syndrome or AS experience the same basic difficulties in nonverbal social interaction, and tend to rely heavily on language as a means of learning about themselves and the world around them. This reliance on language is appropriate for telling of categorical information, but not appropriate for conveying direct experience. The neuropsychological assets and deficits of NLD syndrome are also very characteristic of AS.

Children with NLD syndrome or AS are unable to form representations of their world and do not have the ability to code and represent each novel experience they have. As a result, these children will tend to be more interested in the rule-based aspects of learning and have major difficulties with abstract reasoning and generalizing ideas. When processing new information, children with NLD syndrome or AS will rely primary on their poorly developed deductive reasoning, while completely discarding inductive reasoning.

A variety of researchers identified an impairment pattern in individuals with AS. This pattern suggests possible dysfunction in the right hemisphere**.** Through case reports, Ellis and Gunter [3] found AS to be a result of right hemisphere dysfunction due to incomplete and/or dysfunction of white matter. More recently the focus is also placed on the role of the right hemisphere in both NLD syndrome and AS. This focus, however, has been applied more widely. Consideration is focused on two basic processes, including cognitive development and brain maturations. These mental processes promote brain integration and adaptability. Children with either NLD syndrome or AS are impacted by these mental processes.

Primary neuropsychological assets Auditory perception simple motor rote material	Primary Neuropsychological Deficits Tactile perception Visual perception Complex psychomotor Novel material
Secondary neuropsychological assets Auditory attention verbal attention	Secondary Neuropsychological Deficits Tactile attention Visual attention Exploratory behavior
Tertiary neuropsychological assets Auditory memory verbal memory	Tertiary Neuropsychological Deficits Tactile memory Visual memory Concept formation Problem solving
Verbal neuropsychological assets Phonology Verbal reception Verbal repetition Verbal storage Verbal associations Verbal output	Verbal Neuropsychological Deficits Oral-motor praxis Prosody Phonology>Semantics Content Pragmatics Function
Academic assets Graphomotor (late) Word decoding Spelling Verbatim memory Socioemotional/Adaptive assets	Academic deficits Oral-motor praxis Reading comprehension Mechanical arithmetic Mathematics Science Socioemotional/adaptive deficits Adaptation to novelty Social competence Emotional stability Activity level

Asperger's Syndrome

Asperger [2] indicated that early development of children with AS would be normal. Their language development is quick and they show a high interest in language. Asperger focused on this for quite some time, until he began to also recognize the preservation of formal language skills, such as phonology and syntax, rather then the pragmatics of language. Attachment and early social skills are not extremely unusual, but the absence of deviant language may impede recognition. Children with AS have unusual interests, which affect how they acquire normal skills.

Motor Functioning Praxis

Children with AS have delayed motor skills and motor coordination. These motor delays are listed in the DSM-IV as diagnostic criteria for AS. Young children with AS might not have major motor skill impairment but, as they age, they become more dependent on developmental aspects other than simple motor capacities [11]. Some areas in which a delay in acquisition of motor skills is evident are: Pedaling a bicycle, catching a ball, opening jars, climbing monkey bars, etc. [5]. They have visibly poor posture and appear to have significant visual-motor coordination deficits.

Social Functioning

Although children with AS have identifiable social isolation, they are usually aware of and interested in others. They are often eager to relate to others and understand them. Children with AS have difficulty approaching others and engaging them in conversation. Their conversations are usually long-winded and often meaningless. They fail to realize when a person is losing interest and is seemingly uncomfortable with the conversation. As the child ages, they have problems with spontaneous social interaction. The constant social rejection can have a profound effect on the child's mood and mental state.

The child may respond inappropriately to the context of affective social interaction. They appear to be insensitive or disregarding emotional expressions. While the child with AS may be able to formally explain a person's emotions and intentions, they are unable to do so while in a continuing conversation without a period of rest to gather their thoughts.

Communication

Speech development is not a main concern in a young child with AS. Their language and speech develop improperly as they age and, as a result, they experience significant difficulty in pragmatic or conversational skills. In 1994, Klin identified three distinct ways of communication in children with AS [4]:

- (1) They use a minute number of inflection patterns and do not adjust them based on what they are trying to communicate; (2) Conversation is egocentric and one-sided as they try to verbalize every thought without filtering what actually needs to be said aloud; (3) The child with AS tends to focus only on what they know and are interested in, which may result in a long list of facts without a conclusion.

The fixation on one topic is known as restricted and repetitive behavior, as the child with AS is unable to move on to topics which they know nothing about. They have a vast array of knowledge about random facts, such as snakes, names of stars, and railway schedules.

Conclusion

There is strong evidence pointing towards major similarities in characteristics between children with AS and children with NLD syndrome. This similarity may aid in distinguishing AS from higher functioning autism. AS is a newly researched syndrome and will become better understood as years pass and more researchers gain interest in focusing on its unique characteristics.

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Risk

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Synonyms

Risk factors; Threat; Vulnerability

Definition

A risk is a harmful circumstance or attribute which can cause developmental threat or assault.

Description

Risk factors are defined as stressors or conditions that predict negative outcomes on a person's development. Risk is an especially important component of Resilience Theory, a popular framework used in both applied and basic psychological research. Individuals who have exhibited resilience are viewed as achieving normal functioning despite the adverse conditions they have faced. The emphasis is placed upon the process of bouncing back after exposure to risk; in other words, the term does not attempt to explain or describe a characteristic an individual child possesses. Because many risk factors seem to occur together and their effects seem to accumulate over time, such as school dropout and poverty, researchers have recently begun to study cumulative risk, which is studied by pooling or aggregating information related to the risk factors. For example, a student who lives in a single parent household may not be considered at risk for substance abuse; but, a child who lives in a single parent household and has been retained in school may be at risk for substance abuse. Protective factors keep individuals safe from the threat or assault associated with exposure to different risk factors, and may assist individuals to overcome risks. In the example provided above of the child at risk for substance abuse, a positive relationship with a school teacher may serve as a protective factor in his or her positive development over time. An extensive review of popular protective factors found in resilience literature shows that protective factors generally tend to fall into one of three categories including individual attributes, family qualities, and supportive systems outside the family. Risk and protective factors are central concepts in the Developmental Psychopathology framework used to study normal and abnormal development among children and adolescents.

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Risk Factors

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Synonyms

Associated factors; Early predictors; Psychological correlates; Risk

Definition

Risk factors are variables within the child or the surrounding environment that correlate with an increased probability of the child experiencing negative outcomes.

Description

Risk factors are areas of considerable interest to professionals who work with children. These characteristics of a child's life consist of various issues that reside in the community (e.g., public violence), the family (e.g., parent's educational attainment), the school (e.g., teacher education), and within the child (e.g., temperament).

The more risk factors present in the life of a child, the more likely the child will experience negative outcomes. Development of physical or mental health problems, substance use disorders, difficulties in academic functioning, unemployment, teenage pregnancy, violence, and juvenile delinquency are some of the most common outcomes associated with risk factors experienced in childhood.

The link between risk factors and potential outcomes is identified when researchers statistically correlate the presence of a factor in the past and whether the negative outcomes were experienced. Because these studies are correlational, it cannot be said that the presence of the risk factor *causes* the later problems in functioning, only that a higher probability exists. For instance, certain demographic variables such as low parental income are considered risk factors in pediatric mental health because children in these homes may have fewer available supports. For example, the cost of hiring a tutor or consulting with a psychologist may be unaffordable.

Effects of risk factors are experienced as a manifestation of the child's biology (including genetic predispositions) and environment. As a result of this interplay of nature and nurture, two children with the same risk factor in dissimilar environments could experience different impacts on their development. A child who was exposed to alcohol in utero (a biological risk factor) may be at a greater risk for disruptive behavior disorders later in life; however, if the child were raised by parents with strong parenting skills, the negative outcomes of the alcohol exposure could be reduced. If a child lives in a household with parental discord (an environmental risk factor), but has strong academic skills, the child is on a more positive developmental trajectory than a child with parental discord and poor academic skills.

Risk factors can have a cumulative effect. In the example above, parental discord at home could likely make it more difficult for the child to pay attention in school, and the emotional troubles could lead to externalizing behaviors. For a child already struggling with academics, the effects on school performance can seem to multiply. A child with prenatal alcohol exposure, if raised by a parent with alcohol dependence, may additionally experience emotional or physical neglect. These and other risk factors increase the child's likelihood of developing a behavior disorder.

Prevention programs are often initiated by screening a group of children in a particular school or community for the presence of risk factors. Once identified, the risk factors become the target of intervention to avert the foreseen negative outcomes for the child. Perhaps the most widely known prevention program is Project Head Start. Head Start identifies children with economic disadvantages and offers educational interventions to improve the child's academic performance. Prevention programs like Head Start are designed to build upon the child's strengths and supports. Selection of appropriate early intervention strategies can mitigate or perhaps eliminate the effects of the risk factor and positively affect the child's developmental trajectory.

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Risley, Todd R.

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Life Dates

(1937–2007)

Introduction

Dr. Risley was a pioneer in the field of applied behavior analysis whose research in speech shaping, language

acquisition, time out procedures and incidental learning has influenced the broader fields of education, child development, and psychology. Dr. Risley's motto, "do good and take data," is evidence of his lifelong commitment to finding socially valid, empirically supported approaches to education and rehabilitation [1, 5].

Educational Information

Dr. Risley obtained his B.A. from San Diego State College, where he was mentored by Virginia Voeks, who ultimately encouraged him to pursue the study of learning and child psychology at the University of Washington's Institute of Child Development [5]. While obtaining both his M.S. and Ph.D. at the University of Washington, Dr. Risley worked alongside many child psychology and development leaders, such as Ivar Lovaas and Montrose Wolf – both of whom were post-doctoral fellows – and studied under the advisement of Donald Baer, an internationally renowned researcher and professor in the area of child psychology, development, and applied behavior analysis [2, 4, 5]. Dr. Risley and his colleagues from the University of Washington would ultimately shape the field of behavior analysis away from strict animal experimentation to the direct application of Skinner's behaviorism to the improvement of social problems, culminating in the creation of applied behavior analysis.

Accomplishments

Dr. Risley was a founding Editor of the *Journal of Applied Behavior Analysis* from 1971 to 1974, and served as an Associate Editor for the *Journal of Positive Behavior Interventions*. In addition, Dr. Risley served as the President of both the Association for the Advancement of Behavior Therapy (1976–1977) and the Behavior Analysis Division of the American Psychological Association (Division 25). Dr. Risley also served as Director of Alaska's Division of Mental Health and Developmental Disabilities from 1988 to 1990 [4]. Dr. Risley's book *Meaningful Differences in the Everyday Experiences of Young American Children* [3], was nominated for the Pulitzer Prize.

Contributions

During Dr. Risley's illustrious career in child psychology, he was directly involved in the formation and implementation of 16 major human service organizations and settings. From these endeavors, Dr. Risley contributed to the science of child behavior and development with the publication of more than 50 scientific works [5]. Dr. Risley's 12-year longitudinal study with Dr. Betty Hart on the development of language in young children found that the degree to which parents talked to their children during the early years of their lives predicted academic performance and intelligence test scores later in life [3]. Later in his career, Dr. Risley devoted his time to training parents how to raise their children using the information obtained from his lifelong research career.

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Risolid

►Chlordiazepoxide

Risperdal – M-Tab®

►Risperdal®

Risperdal®

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Synonyms

Risperidone; Risperdal – M-Tab®

Definition

Risperdal® is the brand name for Risperidone, an atypical antipsychotic agent. It is FDA approved for the treatment of shizophrenia in adults and youth ages 13–17. Risperdal® is also FDA approved for the treatment of Bipolar I disorder in children and adolescents

10–17 years of age as well as for treatment of irritability associated with autistic disorder in children and adolescents ages 5–16.

Description

This medication is an atypical antipsychotic, commonly used for acute and maintenance treatment of schizophrenia related psychotic disorders. Risperdal® is available in tablet (0.25, 0.5, 1, 2, 3, and 4 mg), liquid (1 mg/mL), and disintegrating tablet, known as Risperdal M-Tab® (0.5, 1, 2, 3, and 4 mg). Risperdal Consta®, the long-acting injectable form, has not been studied in the pediatric population.

Recommended initial dose for treatment of Bipolar mania in children and adolescents is 0.5 mg/day with an effective dose range of 0.5–6 mg a day. For treatment of irritability associated with autistic disorder, initial dose recommended is 0.25 mg a day with an effective dose range of 0.5–3 mg a day.

When using Risperdal® with children, careful monitoring of both weight and liver function is recommended. Most common side effects include sedation and weight gain. Other reported side effects include loss of appetite, fatigue, upper respiratory tract infection, vomiting, coughing, constipation, fever, increase in saliva, dystonia, abdominal pain, anxiety, nausea, dizziness, dry mouth, tremor, dyspepsia, rash, and akathisia. Long-term side effects associated with atypical antipsychotic use include withdrawal, tardive dyskinesia, parkinsonism, and neuroleptic malignant syndrome.

Relevance to Childhood Development

Risperidone is the only FDA approved medication for treatment of irritability associated with autistic disorder in children and youth ages 5–16. In previous studies, Risperdal® was found effective when used for the treatment of pediatric bipolarity. Previous research supports that Risperdal® may also help with aggression in children and adolescents diagnosed with Conduct Disorder.

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Risperidone

▶Risperdal®

Ritalin

▶Stimulant Medications

Ritalin®

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Synonyms

Methylphenidate; Ritalin-SR®, Ritalin-LA®

Definition

Ritalin® is a stimulant medication FDA approved for children 6 and older for the treatment of ADHD and narcolepsy.

Description

Ritalin® is a central nervous system stimulant used for the treatment of impulsiveness and hyperactivity in children with ADHD. It is also used in the treatment of narcolepsy.

Similar to most other stimulant medications, the active ingredient in Ritalin® is methylphenidate. Ritalin® is available in three forms: Ritalin® immediate release tablets (5, 10, 15, or 20 mg), Ritalin SR® slowly absorbed tablets (20 mg), and Ritalin LA® extended release capsules (10, 20, 30, or 40 mg). Ritalin® and Ritalin SR® tablets

should not be crushed or chewed and must be taken whole. Ritalin LA® capsules may be opened and contents may be sprinkled on apple sauce.

Common side effects include headaches, stomach aches, difficulty sleeping, nausea, loss of appetite, and nervousness. Other side effects including abdominal pain, weight loss, and tachycardia may occur more frequently in children. Note that there are various stimulants believed to have the same treatment effect on ADHD; however, individual reactions may be different to each of these agents.

Relevance to Childhood Development

Methylphenidate, the active ingredient in Ritalin®, is the most commonly used stimulant prescribed for children with ADHD. Beneficial effects of psychostimulants may include reduced hyperarousal, reduced motor restlessness, enhanced concentration, and less aggressive and antisocial behavior. Ritalin® is not FDA approved for children under the age of 6.

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Ritalin-SR®, Ritalin-LA®

►Ritalin®

Ro-0690

►Chlordiazepoxide

Roche-0690

►Chlordiazepoxide

Rogerian Psychotherapy

►Client-Centered Therapy

Rogers, Carl

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Life Dates

1902–1987

Educational Information

Carl Rogers was one of six children born to Walter and Julia Rogers, both from wealthy families with college degrees, at a time when college education was not prevalent. He was born and raised in Oak Park, Illinois until 1914, when his family moved away from the city to a farm outside of Chicago, which allowed him to develop an interest in science and experimentation at a young age. All throughout high school, Rogers collected, studied, and experimented with *Cecropia* caterpillars and moths. As he continued his education, he followed in his father's footsteps majoring in Scientific Agriculture at the University of Wisconsin.

Midway through completing his college degree, Rogers traveled through China, switching his major to History in hopes of pursuing a career in the Christian ministry. Roger's poor health as a child and throughout his life forced him to return home from China and brought about unexpected consequences in several areas of his life. With his return to the United States and the University of Wisconsin, Rogers became active in university life, joined the fraternity, *Alpha Kappa Lambda*, and developed a relationship with another student, Helen, who went on to become his wife in the summer of 1924 after his graduation from college.

Rogers was still determined to become a minister and continued his education at Union Theological Seminary, where he also took courses at the neighboring Teachers College of Columbia University. While attending Teachers College he took a course in clinical psychology taught by

Leta Hollingworth, after which he once again changed career paths, leaving Union to continue doctoral studies at Teachers College. He graduated with his Ph.D. from the Clinical Psychology program at Columbia University in 1931.

Accomplishments

Carl Rogers is one of the founders of the Humanistic approach to psychology, which in combination with Psychoanalysis and Behaviorism makes up the big three forces in psychology. Humanism is a system of thought that accepts an optimistic view of human nature with a focus on human values, needs, worth, and well-being. On December 11, 1940, out of the school of Humanistic Psychology, Carl Rogers held a lecture entitled, "Newer Concepts in Psychotherapy." This event marked the beginning of Rogers' clinical approach known as Person- or Client-centered therapy, which is his most celebrated achievement in the field of psychology. This approach was revolutionary at the time because his therapy was non-directive, emphasized the importance of the therapeutic relationship, and involved face-to-face contact with clients.

Rogers' Client-centered therapy was based on a method involving release, insight, and positive action and this approach is centered on the therapist allowing the client to guide their own way through therapy. The Client-centered approach is composed of three facilitative conditions known as the core conditions: congruence, unconditional positive regard, and empathy. The end point of Client-centered therapy comes when the client becomes a fully-functioning person. In his book *Client-Centered Therapy* (1951), Rogers defines a fully-functioning person as one who is open to experience, able to accept the self, able to cope with life, and able to love and be loved.

Carl Rogers published many books throughout his lifetime, including: *The Clinical Treatment of the Problem Child* (1939), *Client-Centered Therapy* (1951), *On Becoming a Person* (1961), and *A Way of Being* (1980), along with many others. His success led to a professorship at the University of Ohio in 1939 where he remained for 4 years. In 1946 he was elected president of the American Psychological Association (APA). In 1957 he left Chicago to return to the University of Wisconsin to work in both the Psychology and Psychiatry departments. The publication of his book, *On Becoming a Person,* which explored the application of Client-centered theory to all aspects of life, gained him overnight success and influence he had never imagined. The success of this book led to his resignation from the University of Wisconsin and the beginning of his work at the Western Behavioral Sciences Institute (WBSI). After leaving WBSI, he and a group of colleagues left to create the Center for Studies of the Person (CSP), an organization which is still alive today. Rogers continued his work there for 20 years and remained a resident fellow at CSP until his death.

Contribution

Carl Rogers is world-renowned and one of the most notable and influential American psychologists. In his final years, Rogers considered the application of his person-centered approach to world problems and issues. Carl Rogers is less known in the field of psychology for his work with world peace and political issues, nevertheless it remains one of the most significant contributions in his life. In particular, Rogers was interested in helping people from different countries to learn how to cross cultural and racial boundaries by learning and understanding how to respond to others in a person-centered way. In 1985, Rogers led a conference on the "Central American Challenge" that brought together leaders from 17 different countries. This conference, held in Austria, displays the dedication and commitment of Rogers to the preservation of world peace and other political issues. Rogers died in 1987, ironically right before being nominated for a Nobel Peace Prize. From Rogers' client-centered approach and its applications in therapy and psychology to his work toward world peace, he is a distinguished and remarkable man whose contributions remain important today.

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Role-Playing

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Synonyms

Behavior rehearsal; Psychodrama

Definition

Role-playing is a technique, most often utilized in psychotherapy and skills training, whereby the child is instructed to reenact a response encountered in a specified situation. Widely used in the assessment and treatment of maladaptive behaviors characteristic of childhood disorders, the use of role-play provides an efficient means of sampling the child's behavioral skills and/or deficits [3, 2].

Description

Psychotherapy

Role-playing is a relatively nonthreatening technique used as a means of assessment, intervention, and engagement of children in psychotherapy. In general, due to the indirect and contrived nature of this technique, role-play can be used as an effective substitute to traditional "talk therapies," particularly with those children who present as suspicious, guarded, fearful, or depressed as it provides a mode of interaction wherein the child is partially removed from that which he or she may be avoiding; dolls or puppets can also be used to further "remove" the child from direct involvement [1, 4]. Role-playing provides an opportunity for the child to act out a problematic behavior while serving as a performance base for later interventions [3]. A typical role-play involves at least two individuals engaged in the reenactment of a given scenario, either hypothetical or real. Ideally, the role plays should be as realistic as possible so as to evoke the feelings associated with the identified problematic situation. In the case in which the therapist is playing an individual known to the child (e.g., a teacher, parent, or friend), relevant information about that character, such as examples of what that individual might say, mannerisms they may use, or how they typically react would need to be gathered through systematic questioning in order to provide information about that individual as well as to enhance the realistic quality of the interaction [2]. Role-play, as a therapeutic tool, provides valuable insight as to how the child views his or her environment, as well as the dynamic interplay between the environment and the child. Furthermore, role-playing can provide a wealth of information about the nature and quality of the child's interpersonal functioning [4, 2]. As an experiential technique, role-playing is often used in the treatment of trauma whereby affective states related to a trauma are aroused so that the child is able to reinterpret an earlier, traumatic experience through reenactment [1, 4].

Skills Training

Role-playing is commonly used in skills training to improve assertiveness, anxiety, social skills, aggression, and other interpersonal difficulties. Role-playing is a technique typically employed in behavioral and cognitive-behavioral interventions to treat dysfunctional and maladaptive behaviors exhibited by children with clinically significant behavioral difficulties that impair one or more domains of functioning [4]. Thus, interventions that typically employ role-playing, within the realm of skills training, may involve for example, teaching socially phobic children how to interact in social or performance-based situations that invoke considerable distress. Role-playing is used to simulate problematic social. Typically in these sessions a deficit in some domain of functioning is identified and role-playing is often indicated to remediate such deficits. In this setting, adaptive behaviors are rehearsed through role play with the therapist acting as both teacher and model. This allows the therapist to monitor the child's performance while offering immediate corrective feedback [1, 3].

Relevance to Childhood Development

Psychotherapy with children differs from adult psychotherapy as children typically lack the cognitive abilities to comprehend and assimilate that which is primarily language oriented [4]. Following a Piagetian model of cognitive development, a child whose cognitive capacities are characterized by the concrete operations stage cannot yet engage in ►metacognition. As such, it is likely that children in this stage of cognitive development struggle with the expression of emotional concepts. Often a child may have difficulty expressing his own feeling states, yet he is able to talk of them when speaking in the third person. For these reasons, role-playing is often used within the context of psychotherapy with children [2, 4].

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Role-Taking

►Perspective-Taking

Rorschach Inkblot Method

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Synonyms

Inkblot test; Rorschach test

Definition

The Rorschach Inkblot Method is a performance-based personality assessment measure. The test consists of ten inkblots. Five inkblots include only shades of grey and black, two include red pigment along with the grey and black and three inkblots have a variety of colors. Test-takers are shown each inkblot, one at a time, and asked "What might this be?"

Description

The Rorschach Inkblot Method was developed by Hermann Rorschach in 1921. From the start Rorschach viewed his method as a perceptual task rather than an association or projective task. His great insight was to propose a method for coding how respondents formed percepts, that is, using color, shape, etc. Due to his untimely death from appendicitis, we will never know in what direction Rorschach might have taken his method. Although there have been numerous approaches proposed for scoring and interpreting the Rorschach, in 1974 John Exner introduced the Comprehensive System utilizing the most robust and best researched scoring categories and introducing several new ratios and scores. Although criticized as lacking validity and reliability by some researchers [6], others point to extensive positive findings that place the Rorschach on par with other personality instruments such as the MMPI-2 [4].

There are two components to the standardized administration of the Rorschach. In the free association phase respondents are given each of the ten inkblots sequentially and asked "what might this be." Responses are taken down verbatim by the examiner. In the second, or inquiry phase, the responses are repeated back to the respondent with the instruction to indicate where on the inkblot they saw the percept and what about the inkblot makes it look like that. In this way a record of the responses is collected with enough data to consistently translate the responses into a form that can be coded and interpreted.

Coding of Rorschach responses involves describing each response in terms of location (where on the inkblot the response was perceived), determinants (what aspects of the inkblot contribute to the response) and contents (categories of items perceived). In terms of location, a response might utilize the entire inkblot (W or whole), a commonly reported region (D) or an unusual detail (Dd) that is utilized by fewer than 5% of the normative sample. In addition to these three location codes, if a respondent incorporates the white space areas of the inkblot, an S is added to the location code (WS, DS, DdS).

Determinants describe what aspects of the inkblot the respondent attended to in creating a response. For example the outline or shape of an inkblot might be the dominant contributor to one response whereas another might take into account the color or shading features of an inkblot.

Each response is then scored for its conformity to the actual contours of the inkblot. Percepts that "fit" the area to which they are ascribed are seen as better integrated and connected to the reality of the blot whereas less well-fitting percepts are thought to represent greater use of internal fantasy at the expense of the real features of the stimulus.

Research has shown that respondents perceive many more things in the inkblots than they report to the examiner. The selection of some percepts and rejection of others is largely a function of personality dynamics. The respondent attempts to complete the task of saying what the blot might be to the best of his or her ability according to the perceived demands of the examiner.

Relevance to Childhood Development

Although the Rorschach has a long history of use with children there is some controversy over normative data for this population. A normative sample of 1,390 children aged 5–16 has been published [2] but is largely based on data collected from 1973 to 1986. More recent samples have suggested different values for some structural variables in the Comprehensive System [3], however these results have been challenged on methodological grounds [5].

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Rorschach Inkblot Test

►Rorschach Test

Rorschach Test

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Synonyms

Inkblot Test; Rorschach Inkblot Method; Rorschach Inkblot Test

Definition

A performance-based personality assessment measure for ages five and older.

Description

The Rorschach Inkblot Test (RIT) is a semi-structured, standardized, personality assessment for use with individuals 5 years and older. The RIT stimulus consists of ten inkblots; five are black-and-white (and shades of grey), two are bi-chromatic, and three are multicolored. They are presented in a standard order according to a structured administration procedure. Although several systems for administration and scoring have been used throughout the history of the test, the most common system is that of Exner [1]. Recent surveys have shown that the Rorschach is one of the most commonly used personality assessment measures by psychologists working with children and adolescents.

Administration

The standardized administration consists of two steps. In the first step, the client is shown, one at a time, the ten blots and asked what the images might be. The client is allowed to respond how they see fit provided they give enough responses for scoring purposes. In the second phase, the client is shown the blots again, but asked to elaborate on what aspects or features of the blot were the most salient in forming their responses. The clinician is limited in what aspects of the client's response can be queried and the types of questions that can be asked. For example, clinicians are forbidden to use leading questions or questions that might give the client a new vocabulary for describing features of the blot.

Scoring

Like all standardized psychological tests, the RIT makes use of a norms-based scoring procedure. The client's verbal output is transcribed verbatim and this output is then scored based on several different aspects of their response. Specifically, each response is coded for location, complexity, integration, content, and use of space, color, and shading. In addition, responses can be coded for "Special Scores," which are aspects of a client's response that might signal cognitive slippage or psychopathology. Together, scores are summed and compared to age-matched normative samples in order to generate clinical hypotheses.

Norms and Psychometrics

Exner's normative samples for children and adolescents are dated and some have questioned their validity with current populations. Although some other normative samples are available for child and adolescent populations, it is advisable to use the norms available in the 2003 manual. However, Meyer and Viglione [7] recommend that adjustments be made according to irregularities found between Exner's samples and a large number of international normative samples. A number of studies have supported the reliability of the Exner system, both in terms of internal consistency and inter-rater agreement [2–10]. Validity for any test is contingent upon sample, referring question, setting, and use. The RIT has been shown to be particularly useful in the assessment of thought disorder, aggressive tendencies, personality disorder, treatment outcome, and cognitive dysfunction. Interested readers should make use of the number of recent summaries of this work; clinicians should remain abreast of the most recent research because Rorschach research is quite active at the moment.

Domains of Assessment

According to available research, the RIT appears to be particularly useful for the assessment of personality and emotional functioning. Like other performance-based (projective) techniques, the Rorschach allows for the examination of spontaneously-generated behaviors that serve as in vivo demonstrations of personality or personal characteristics. The RIT appears to be particularly strong for assessing problem-solving, thinking styles, reality testing,

and perceptual soundness. The measurement of interpersonal expectations and orientation, dependency, and aggression has been supported by research. Although research evidence exists to suggest that the RIT is effective in measuring depression and anxiety in adult samples, such evidence is less well-established with child samples.

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Rorschach, Hermann

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Life Dates

1884–1922

Introduction

Hermann Rorschach is best known for developing the Rorschach Inkblot Test, a performance-based measure of personality dynamics. The Rorschach inkblot Method is one of the most frequently used assessment measures in clinical practice.

Educational Information

Herman Rorschach was born 1884 in Zurich Switzerland. His father studied art and moved to Schaffhausen where he taught painting. Rorschach was himself recognized as a talented artist in his own right and was known for his detailed drawings of patients in their hospital charts. In 1897 Rorschach's mother died from complications of diabetes and his father died in 1903, apparently the result of exposure to lead contained in his paints.

Rorschach studied medicine at the University of Zurich from 1904 to 1909, obtaining his medical degree in 1909 and specializing in Psychiatry. In 1910 he met and married Olga Stemplin, a Russian national, lived for time in Russia and joined a lucrative practice but returned to Switzerland out of attachment for his homeland. Although he intended to return to Russia he never did.

Accomplishments

Rorschach served as an assistant at the asylum in Munsterlingen from 1909 to 1913. In 1914 he served as assistant at the Waldau psychiatric hospital. His wife, who had been living with family in Moscow since late 1913 was detained and unable to return to Switzerland until 1915 as a result of wartime tensions. In 1915 Rorschach accepted the position of Assistant Director at the Herisau Asylum in Appenzell.

Contributions

Inspiration for Rorschach's inkblot test came from at least two sources. Between 1900 and 1914 the University of Zurich's psychiatric hospital, the Burgholzli, became an active site of innovation in the humane treatment of the mentally ill. In 1898 Eugene Bleuler took over as head of the hospital and appointed Carl Jung as the assistant director. The Burgholzli became famous for its work on word association and the study of schizophrenia (then called dementia praecox). One explanation of schizophrenia arising from this work was that it was a disturbance in associational ability.

A second source of inspiration came from a common parlor game at the time called *Klecksographie*. In this game blots of ink are applied to blank paper which is then folded over to create a symmetrical image. Players compete to name as many possible images seen in the inkblots. It is rumored that Rorschach was so enamored of this game that he earned the nickname *Klex* [1].

Rorschach experimented with a large number of inkblots, modifying them so as to create images that elicited complex responses from subjects. He selected ten inkblots and administered them to 288 hospital

patients and 117 nonpatients giving them the simple instruction "what might this be?" The results of this investigation were published in a 1921 monograph entitled *Psychodiagnostics*.

Although commonly referred to as a projective instrument, Rorschach's real innovation lay in his description of the manner in which respondents utilized various attributes of the inkblots to form their perceptions. In *Psychodiagnostics* Rorschach proposed an elegant system for coding and interpreting the limitless possible responses provided by examinees.

Unfortunately, Rorschach did not live long enough to complete his work. He died in 1922 at the age of 37 from peritonitis secondary to a ruptured appendix. After Rorschach's death the monograph languished but was kept alive by close friends of Rorschach including Emil Oberholzer who would play a role in introducing the work to American psychiatrists who came to Zurich to study. The Rorschach inkblot method continues to be one of the most commonly administered personality assessment instruments.

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Rosenthal Effect

►Pygmalion Effect

S

Saccades

►Eye Movements

Sadness

►Cross-Culture Perspective on Bereavement Springer

Sally-Ann Task

►False Belief Task

Sand Tray Therapy

►Play-Group Therapy

Sanval

►Ambien (Zolpidem)

Sapir-Whorf Hypothesis

►Whorfian Hypothesis

Sarafem

►Fluoxetine

SAT Reasoning Test

►Scholastic Aptitude Test

SAT-I

►Scholastic Aptitude Test

Saturnism

►Lead Poisoning

Satz, Paul

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Introduction

Dr. Satz is an internationally-renowned clinical neuropsychologist who has devoted many years to advancing our understanding of human brain injuries and how effective therapeutic strategies can enhance recovery of function. His varied research interests also include dyslexia, learning disabilities, brain laterality and remediation in schizophrenia [1, 4].

Educational Information

Dr. Satz received his doctorate of philosophy in clinical psychology from the University of Kentucky, College of Medicine, in 1963. His dissertation on the block rotation task won the Creative Talent Award given by the American Institute of Research.

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

Accomplishments

While at the University of Florida, Dr. Satz developed the first neuropsychology research laboratory as well as the first neuropsychology clinical service. Many prominent clinical researchers have been mentored by Dr. Satz at these facilities and he also helped establish the Association of Post-Doctoral Programs in Clinical Neuropsychology [5]. In addition, Dr. Satz was one of the early founders of the International Neuropsychology Society, helped develop Division 40 of the American Psychological Association (APA), and he was awarded the APA Award for Distinguished Professional Contributions.

Contributions

Dr. Satz has made an invaluable contribution to the development of neuropsychology as a distinct research and professional discipline. He has been one the most productive researchers in neuropsychology as evidenced by more than 300 publications that he has authored and coauthored. Dr. Satz has also coauthored several books including *The Disabled Learner, Middle Childhood: Development and Dysfunction,* and *Neuropsychology of Human Emotion* (e.g., [2, 3]).

Current Involvement

Dr. Satz is currently Professor Emeritus and Chief of the Neuropsychology program at the David Geffen School of Medicine at UCLA.

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Savant Syndrome

►Idiot Savant

Savantism

►Idiot Savant

SB5

►Stanford-Binet Intelligence Scales

Scaffolding

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Synonyms

Dynamic assessment; Peer-tutoring; Zone of proximal development

Definition

A learning process by which interaction with another individual occurs, resulting in higher competency.

Description

The term instructional scaffolding is a metaphor referencing its original meaning in construction; a temporary framework to support building. Related to instruction, scaffolding is a tool (i.e., assistance from others) for an individual to reach another level of knowledge or skill that could not have been gained without assistance.

Wood, Bruner, and Ross first developed the term for pedagogical purposes, in their 1976 article, "The role of tutoring in problem solving" [6]. They described the term as a means of one on one learning through a tutoring model. This social dynamic later coined as "scaffolding" was a critical component of Lev Vygotsky's Zone of Proximal Development (ZPD) theory. ZPD is a process by which a learner gains knowledge from interactions with their surroundings. Social interactions and their influence on a learner's education are an important part of ZPD. Comparatively, the concepts of ZPD and scaffolding are both based on the assertion that the individual learner will acquire more knowledge through more dialectic interactions than they would if attempting to learn in isolation.

In scaffolding, speech (discourse) is a critical tool and is typically thought of as facilitating intellectual growth. However, the social process of scaffolding also facilitates the development of other intrapsychological processes that promote successful learning such as motivating the student, managing frustration, and regulating attention. Scaffolding is expected to be temporary with supports (surrounding individuals who are more knowledgeable) and should move in the direction of higher competency [4]. Scaffolds (the more knowledgeable individuals) are not limited to school teachers. They can be parents, mentors, peers, tutors or anyone who will facilitate growth in a skill or ability [2].

Relevance to Childhood Development

Tanner and Jones [5] showed that scaffolding in teaching styles effectively accelerated metacognitive skill development. Comparatively, in free play, children may be able to solve a problem without assistance but may not be aware of the relationship between the actions that created the solution. This suggests that there will not be a solid understanding of procedures for the solution of the task, which would result in the inability to use it for future tasks. Studies also show that scaffolding results in children becoming self-regulating and independent of adult help [1, 3].

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Scale Scores

►Norm-Referenced Scores

Scalloped Response Pattern

►Fixed Interval Schedule

SCC

►Standard Celeration Charting

Schema (Singular)

►Schemas

Schemas

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Synonyms

Schema (singular); Schemata

Definition

Schemas refer to theoretical mental structures that assist individuals in simplifying and organizing knowledge. Phrases used to describe schemas have included the following: mental frames, global knowledge structures, building blocks of cognition, organized knowledge of the world, organized memory structures, and packaged units of knowledge.

Description

Included in schemas are the prior experiences, established knowledge, and abstract representations of events, objects, and relationships in the world of an individual. An individual's schemas tend to influence what he or she perceives, understands, infers, remembers, and comprehends.

The schemas of an individual are not stagnant. As an individual lives through different experiences and gains additional knowledge, his or her schemas continue to develop. Similarly, the more experience and knowledge

an individual can add to a particular schema, the more complex that schema becomes. For example, due to the magnitude of their experiences, professional-culinary chefs hold a more complex schema for cooking gourmet meals than do inexperienced cooks.

Relevance to Childhood Development

The term "schema" is significant to the field of childhood development because it has influenced learning theories, teaching methods, and curriculum design. Two lines of work associated with childhood development and influenced by the notion of schemas are *cognitive constructivism* and *cognitive-developmental constructivism*. These two theoretical lines of work share the idea that individuals generate knowledge and meaning from their experiences. They have also been associated with the ideas of Jean Piaget [1] who focused on child-centered learning. Piaget's belief in child-centered learning was directly related to the theoretical idea of schemas.

In addition to learning and remembering, schemas have also been linked to achievement in reading comprehension [2, 3]. A reader is able to comprehend at a higher level when he or she has a well-developed schema that relates to the content being read. In addition, a reader with schemas that are less complex is likely to find the reading selection to be difficult to comprehend. The relationship between prior knowledge and reading comprehension is explored within the realms of *schema theory*, which is associated with Rumelhart [3].

Not only has the idea of schemas influenced learning theories, it has also assisted in designing effective teaching methods and learner-centered curriculum. With these multiple areas of influence, it is clear that the theoretical idea of schemas has played an important role in child development.

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Schemata

▶Schemas

Schizophrenia

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Synonyms

Childhood schizophrenia

Definition

Schizophrenia is a chronic and debilitating psychiatric illness that represents a profound disruption of the most fundamental human attributes which include, emotion, language, thought, and perception.

Description

The term *schizophrenia* was first coined by Swiss psychiatrist Eugene Bleuler in 1908 following psychiatrist Emil Kraepelin's distinction between what he called "dementia praecox" and other forms of madness. The term schizophrenia comes from the Greek words *schizo* (split) and *phrenos* (mind) [2]. Schizophrenia is a psychiatric diagnosis denoting a mental illness in which component processes are in a state of dysregulation. These processes include neurotransmitter systems, attention and memory, formation of beliefs and abstract thinking, and performing behavioral activities in a socially meaningful context.

Schizophrenia is characterized by impairments in social functioning (e.g., work, home, school) and difficulties in caring for oneself (e.g., poor hygiene). In addition to problems in daily living, individuals with schizophrenia experience a wide range of symptoms including positive symptoms, negative symptoms, cognitive impairments, and problems dealing with the regulation of mood. Positive symptoms refer to features which are present or *added*

to an individual's typical presentation (e.g., delusions; hallucinations; bizarre, disorganized behaviors). Delusions, in particular, can be broken down into smaller subsets; persecutory delusions, delusions of being controlled, thought broadcasting, thought insertion, thought withdrawal, delusions of guilt or sin, somatic delusions, and grandiose delusions. Negative symptoms refer to features which are absent or *taken away* from an individual's typical presentation (e.g., alogia, avolition, psychomotor retardation, flattened affect, anhedonia). Positive symptoms appear to be more responsive to psychopharmacological treatment whereas negative symptoms tend to be more treatment-resistant and follow a more chronic and stable course. Cognitive impairments include difficulties with memory, planning, and abstract thinking, while problems dealing with the regulation of mood include depression, anxiety, and anger [1].

Schizophrenia has been observed across a wide range of different populations and cultures with prevalence rates among adults ranging from 0.5 to 1.5% [1]. The onset of schizophrenia typically occurs between late adolescence and early adulthood. Schizophrenia affects men and women with equal frequency although men typically present earlier (between 18 and 25) than women (between 25 and the mid-30s). Studies suggest that urban-born individuals are at an elevated risk of a formal diagnosis of schizophrenia compared with rural-born individuals [2]. Although rare, the onset of schizophrenia may also begin later in life (e.g., after age 45). For this particular cohort, the proportion of affected women is significantly greater than that of men. The risk for schizophrenia of first-degree biological relatives of individuals with schizophrenia is 10 times greater than that of the general population [1].

The course and prognosis of schizophrenia follows the "Law of 1/3's" which states that about one third of people have nearly complete remission with only mild relapses and little disruption to their daily lives, one third has a variable pattern of symptom exacerbation with more interruption to daily functioning, and the final third has chronic symptoms that impair most aspects of daily life. The life expectancy of individuals with schizophrenia is shorter than that of the general population due in most part to suicide. Approximately 10% of individuals with schizophrenia commit suicide and between 20 and 40% make at least one attempt over the course of the illness [1].

Currently, treatments in schizophrenia are not viewed as a "cure" for the illness, but rather as strategies which help manage the illness and minimize disruption in life. Psychiatric rehabilitation has emerged as an approach to organizing a diversity of treatments for the purpose of overcoming disabilities [2]. Psychiatric rehabilitation efforts, in general, target multiple levels of functioning to optimize treatment outcome and prevent relapse.

Relevance to Childhood Development

The essential features of schizophrenia are the same in children as they are for adults, although a formal diagnosis of schizophrenia may be particularly difficult to make for this age group. Delusions and hallucinations may be far less elaborate in children than in adults and visual hallucinations may be more common. The presence of disorganized speech may also present complications in assigning a formal diagnosis of schizophrenia in children. A number of childhood disorders possess symptoms comparable to those of disorganized speech (e.g., Communication Disorders, Pervasive Developmental Disorders) as well as disorganized behavior (e.g., Attention-Deficit/Hyperactivity Disorder) [1]. These symptoms should not be attributed to schizophrenia without further consideration of these more common childhood disorders.

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Schizophrenia Spectrum disorders

▶Childhood Schizophrenia

Scholastic

▶Academic Achievement

Scholastic Achievement Test

▶Scholastic Aptitude Test

SAT

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Synonyms

SAT-I; SAT reasoning test; Scholastic achievement test; Scholastic aptitude test; Scholastic assessment test

Definition

The SAT is a standardized, high-stakes college entrance examination widely taken by students throughout the United States. It consists of three distinct parts: a mostly multiple-choice verbal section, a multiple-choice mathematics section and, as of 2005, an essay section.

Description

The SAT Reasoning Test is a standardized, high-stakes college entrance examination widely taken by students throughout the United States. It is nearly a century old, being first administered in 1926 and initially largely developed by Carl Campbell Brigham (1890–1943) who had earlier worked on the Army Alpha and Beta intelligence tests. The test itself was originated for and is owned by the College Entrance Examination Board, and is administered by the Educational Testing Service (ETS). The chief rival of the College Board is American College Testing, who publishes the ACT test; traditionally the SAT was taken primarily by students on either coast of the United States and the ACT was taken by Midwesterners. Until 1990, the SAT was known as the Scholastic Aptitude Test; between 1990 and 1993, the test was known as the Scholastic Achievement Test. Currently, the College Board does not attach any official meaning behind the acronym "SAT" although the test is still sometimes referred to by an earlier name such as the Scholastic Achievement Test in the research literature. The SAT Reasoning Test stands apart from the various SAT subject tests that are also offered by the College Board.

Neither the College Board nor ETS describe the SAT as an intelligence test, although research does indicate high correlations between SAT scores and overall general intelligence or *g*. The College Board currently describes the SAT Reasoning Test as an assessment of critical thinking skills. Since the 1960s, the College Board has released descriptive data on every SAT as a public service, which has led some researchers to use SAT scores as an estimate of the quality of overall high school education throughout the United States; this unintended use may not be valid. Regardless, both the College Board's research and research done in academia agree that the SAT is a predictor of college grade point average, making the SAT a heavily-weighed factor in most admissions processes. The new SAT Reasoning Test's predictive ability is about the same as the older versions.

The current version of the SAT Reasoning Test contains three components, each worth between 200 and 800 points, and with a mean of about 500. Each of those components, in turn, consists of three sections. There is also an unscored section consisting of new items that are being piloted for potential future use. Thus, the final SAT score ranges from 600 to 2,400, based on the nine scored sections of the test. Aside from the first and last sections of the test, the sequence of the remaining sections is jumbled. The SAT is a timed test, taking a total of three-and-three-quarters-of-an-hour for the student to complete (not counting time spent receiving instructions). Students within the United States and its territories may take the SAT at seven different times of the year, whereas students elsewhere may take it at six different times.

The critical reading section of the current SAT replaces what was formerly known as the verbal section of the test, and is largely concerned with answering questions based on reading passages instead of the analogy-type questions that used to appear on the SAT. The mathematics section of the current SAT includes higher-level questions than did the older SAT, which did not require more than basic algebra, and omits the quantitative comparison-type questions in favor of more straightforward items. The writing section of the current SAT is similar to the old SAT writing subject test and consists of both an extended essay as well as multiple choice items directed toward issues related to fluent writing and revision techniques. The essay topic itself is broad enough to be accessible to the widest possible variety of students' socioeconomic background and, in fact, many of the changes made to the SAT Reasoning Test in general seem to reduce the possibility of ethnic and racial bias that some researchers reported in earlier editions.

As colleges overall expanded their pools of applicants and the demographics of the average group of students taking the SAT changed, the average SAT score declined from the 1960s to the 1980s. This decline, coupled with concerns over the thresholds needed for admission to select colleges, has partially led to two distinct trends. The first is the rise of the test-prep program; companies such as the Princeton Review and Kaplan offer courses which, some research shows, increase students' scores on tests like the SAT. The second is the trend within some

mostly liberal arts schools to diminish the importance of SAT scores in favor of high school grade point averages and other, more subjective, criteria.

Relevance to Childhood Development

The SAT has provided a rite-of-passage for generations of American adolescents as they prepare to transition to an adult life beyond their high school experience. Given its status as a rigorously designed standardized test developed by a premier testing company, the SAT was (and still is) a key component to acceptance into competitive college programs and thus the results of the test are extremely high-stakes. Long before the standardized testing boom that emerged in response to the *No Child Left Behind* act, both the SAT and the stress accompanying preparation for it, were well known to both parents and children. As perhaps the highest-profile standardized test taken by the greatest number of Americans, the literature concerning the SAT exemplifies the strengths, weaknesses, and controversies surrounding standardized educational tests.

Acknowledgement

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Scholastic Assessment Test

►Scholastic Aptitude Test

Scholarship

►Literacy

School Adjustment

►School Readiness

School Climate

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Synonyms

Classroom climate; School culture

Definition

School climate is often referred to as the social atmosphere of a setting or learning environment in which students have different experiences, depending upon the protocols set up by the teachers and administrators.

Description

There are many key components that make for a positive school climate. It may be described as an orderly environment in which the school family feels valued and able to pursue the school's mission free from concerns about disruptions and safety. Providing a caring and safe atmosphere are two essential factors that are often mentioned. Research on school climate often indicates several environmental conditions as being critical in establishing a positive school climate. These include the following:

- A physical environment that is welcoming and conducive to learning
- A social environment that promotes communication and interaction
- An affective environment that promotes a sense of belonging and self-esteem
- An academic environment that promotes learning and self-fulfillment

Research shows that school climate can affect many areas and people within schools. For example, a positive school

climate has been associated with fewer behavioral and emotional problems for students. Additionally, specific research on school climate in high-risk urban environments indicates that a positive, supportive, and culturally conscious school climate can significantly shape the degree of academic success experienced by students. Furthermore, researchers have found that positive school climate perceptions may supply high-risk students with a supportive learning environment yielding healthy development, as well as preventing antisocial behavior. School climate research suggests that positive interpersonal relationships and optimal learning opportunities for students in all demographic environments can increase achievement levels and reduce maladaptive behavior.

Regarding the roles of teachers and administrators, it has been found that a positive school climate is associated with increased job satisfaction for school personnel. Finally, student perspectives are important during the transition from one school level to another. Attending a new school can be frightening for students and this apprehension can adversely affect students' perceptions of their school's climate and learning outcomes. Therefore, research has shown that providing a positive and supportive school climate for students is important for a smooth and easy transition to a new school.

Educators and parents have multiple options to enhance school climate and students' overall educational experience. The following is a sample list of possible interventions to improve school climate:

- Increased parent and community involvement
- Implementation of character education or the promotion of fundamental moral values in children
- Use of violence-prevention and conflict-resolution curricula
- Peer mediation
- Prevention of acts of bullying
- Teachers and principals treat students fairly, equally and with respect
- Implementing programs that encourage a safe environment for staff and students
- Personalization through adopt-a-kid programs, honoring most-improved students, and block scheduling

Many researchers have developed measures of school climate. Examining these measures and the attributes specifically assessed provides further detail into the nature of school climate. These assessments consider multiple factors and individuals within the school system using direct measures, such as surveys and interviews, and indirect measures, such as disciplinary and attendance records The School Climate Survey contains seven dimensions of school climate and specifically assesses students' perceptions in the following areas:

- Achievement motivation
- Fairness
- Order and discipline
- Parent involvement
- Sharing of resources
- Student interpersonal relationships
- Student–teacher relationships

The Charles F. Kettering Ltd. (CFK) School Climate Profile is also widely used to measure school climate. This survey is comprised of four sections and is given to teachers, administrators, and students. Part A, the General Climate Factors, is comprised of the following eight subscales [9]:

- Respect
- Trust
- High morale
- Opportunity for input
- Continuous academic & social growth
- Cohesiveness
- School renewal
- Caring

Relevance to Childhood Development

School culture and school climate are useful terms for the intangibles that can affect learning. As such, they deserve serious attention in the effort to improve performance. Comprehensive models that have been developed for school reform have invariably included change in school culture and school climate.

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School Culture

►School Climate

School Dropout

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Synonyms

School leaving

Definition

School dropout is defined as leaving school without a high school diploma.

Description

School dropout is of great concern in the United States as a significant number of students leave before earning a diploma. Current estimates place the overall dropout rate at 9.4% [14]. This estimate is even higher among students with disabilities, as well as low income and ethnic minority students [8]. For example, in 2000–2001, 41.1% of students age 14 and older with disabilities dropped out of school [13]. Low income students are more than twice as likely to leave school early when compared to middle-income students and about ten times more likely than students from high-income families [4]. In 2005, the dropout rates for Hispanic and African-American students were 22.1% and 10.4%, respectively [14]. Compared with individuals who complete high school, dropouts have fewer employment opportunities and, if employed, earn significantly less [3]. Further, school dropout negatively affects the economy, as billions are spent on welfare, unemployment, and crime prevention to support school dropouts who are more likely to be unemployed, receive public assistance, and be imprisoned [7]. Given the prevalence and negative consequences of school dropout, legislation such as No Child Left Behind (NCLB) was put in place to hold schools accountable for student achievement and success. NCLB requires all school districts to provide a yearly report of students' performance and statewide assessments as well as school dropout and graduation rates.

Individuals usually decide to drop out of school by tenth grade when they are at the age of 16 to legally make that choice. Numerous risk factors involving the individual student, student's family, school, and community typically result in the decision to leave school. Such risk factors may be placed in three broad categories: (1) social background including factors such as race/ethnicity, gender, socioeconomic status [SES], family structure, and inner-city residence; (2) academic background including factors such as ability, test scores, history of grade retention, school engagement, school grades, course failures, truancy, and behavioral problems; and (3) school characteristics including structure and school social organization [9].

Social Background

School dropouts are more likely to be boys than girls, and more likely to be individuals from racial and ethnic minority groups, low-income families, single-parent households, highly stressful (e.g., divorce, death, marriage) households, born to teenage mothers, and from families in which one or both parents also did not complete high school [10]. Among these factors, parents' educational level seems to have the most consistent effect on school dropout. Specifically, low parent educational level seems to increase the likelihood of school dropout because such parents are less likely to be able to teach their children basic prerequisite skills for learning. Children who start school without the basic skills for learning tend to perform poorly in school. Low academic achievement tends to increase students' alienation from school, leading to absenteeism, which in turn increases the risk for school dropout [12].

Academic Background

Poor academic achievement is one of the strongest predictors of school dropout. Specifically, students who eventually drop out of school typically have a history of failing courses, receiving low grades even as early as the first grade, taking lower level courses in middle and high school, being retained at least one year and receiving special education services. They also typically have

a history of behavioral problems, low engagement in classroom via frequent absences, lack of classroom participation, inattention, and disengagement in school functions and extracurricular activities [5].

School Characteristics

The school's structure and social organization have been linked to school dropout. Schools are organized in a way that "push" out some types of students, particularly those who manifest the social and academic characteristics mentioned above [9]. School structure, which includes sector and enrollment, is an important factor related to school dropout. For example, private schools (e.g., Catholic schools) and schools with smaller student population have been found to have lower rates of school dropout than public and urban schools [11] as the former are often described as more favorable learning environments for students. Interviews with individuals who have dropped out of high school revealed that a large number often leave school due to negative relationships with teachers and/or peers; they believe their teachers do not care about them or their progress in school, and are unwilling to support them when problems arise [5].

Among the various characteristics within the three broad categories associated with school dropout, poor academic performance, low SES, and behavioral problems seem to be the three main risk factors [10]. Further, the combination of two or more risk factors increases the likelihood of school dropout [5].

Relevance to Childhood Development

School dropout is a serious problem that has profound consequences for the individual student, the school system, the community, and society at large. The decision to leave school does not happen overnight and is often the end product of a combination of multiple social, academic, and school risk factors that begin early in life [2]. Some risk factors are present as early as the first grade (e.g., receiving low grades, behavior problems, receiving special education services), while others are present even before school enrollment (e.g., single-parent households, low parent educational level, poverty, and ethnicity). Therefore, prevention and intervention programs across different settings (i.e., school, family/home, and community) targeting school dropout risk factors should be in place from early childhood and sustained throughout the school years, in order to prevent and reduce the likelihood of school dropout in later years. Some school-level programs that have been advocated include: (1) eliminating grade retention; (2) individualizing school programs to meet students' needs; (3) providing counseling services; (4) providing supportive learning environments that allow students the opportunity to be successful; and (5) providing a balance of academic and extracurricular activities [6, 10].

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School Leaving

▶School Dropout

School Performance/Achievement

►Academic Achievement

School Psychologist

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Definition

A psychologist trained in psychology and education whose aim is to enhance the potential of children.

Description

School psychologists are professionals who have completed graduate study in the areas of psychology and education. The training of school psychologists is guided by *Blueprint III*, a statement on the training and practice of school psychologists developed by leading experts in the field [3]. The field of school psychology works to enhance the academic, emotional, and social potential of children [2]. School psychologists assist with the development and implementation of prevention and intervention efforts for children. School psychologists use consultation and assessment measures to assist in these efforts. Many times school psychologists are employed to work within schools to accomplish these goals. However, school psychologists may work in other settings such as hospitals, health centers, private practice, and university settings. School psychologists work with educators, parents, community advocates, school administrators and others to enhance the learning environment for students. The National Association of School Psychologists is the professional organization for the field of school psychology. Division 16, the Division of School Psychology, of the American Psychological Association has also helped to develop the profession of school psychology through research activities and advocacy. Both organizations have developed a code of ethics to help guide the profession [1].

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School Psychology

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Definition

School psychology is a field of study and professional practice focusing on the educational and psychological needs of children, youth, and families. Although closely related to many other fields such as clinical and counseling psychology, developmental psychology, applied behavior analysis, special education, education, and school counseling, school psychology is a unique discipline. It requires training in child development, learning, behavior, motivation, and mental health, to name a few, as well as in the assessment, consultation, and intervention of these domains.

Description

School psychology is a relatively young field that is rooted in child development, clinical psychology, and special education. The origin of school psychology is generally traced to Lightner Witmer's establishment of the first psychological clinic at the University of Pennsylvania in 1896. However, development and use of the terms *school psychology* and *school psychologist* did not emerge until approximately two decades later when Arnold Gesell was first appointed to the position of *school psychologist* [1]. The first comprehensive picture of the field was assembled at the Thayer Conference of 1954, during which the training, credentialing, and practice of school psychology were delineated [3]. Descriptions of and practices within the field have evolved substantially, accompanying economic, social, and legal impetus. Currently, the two most influential bodies in the field are the National Association of School Psychologists (NASP) and the Division of School Psychology (Division 16) of the American Psychological Association (APA).

With clear ties to both psychology and education, APA and NASP have similar descriptions for the profession of school psychology. Both emphasize concern for the development, mental health, and education of children and

adolescents; collaboration and consultation with parents, educators, and other professionals; and the provision of services within the context of educational settings, although school psychologists are not limited to those settings [3]. However, NASP and APA currently disagree on the minimum requirements for becoming a school psychologist, with the former advocating a specialist degree and the latter a doctorate degree. Additionally, APA regards school psychology as a specialty within the broader field of psychology rather than as a separate profession. This distinction is reflected in the beginning of APA's archival definition of school psychology found on their website: "a general practice and health service provider specialty of professional psychology that is concerned with the science and practice of psychology with children, youth, families; learners of all ages; and the schooling process."

Another approach to defining the field of school psychology is to examine the roles and responsibilities of a school psychologist. According to NASP, the major roles assumed by most school psychologists include consultation, evaluation, intervention, prevention activities, research, and planning. School psychologists collaborate with parents, educators, administrators, and other service providers in order to develop interventions for particular student problems and to strengthen communication and relationships between all parties involved. Assessments are conducted in order to evaluate eligibility for special education services, current academic skills (e.g., achievement testing, curriculum-based testing), aptitude for learning (e.g., intelligence testing), behavioral and social-emotional status, and school and classroom environments. Assessment results are linked to appropriate interventions, which may be designed for individual students, groups of students, or families. Interventions may involve counseling, crisis responses, implementation of behavior management plans, and the allocation of more intensive and individualized academic support. Preventive efforts largely center on the delivery of training to parents and school personnel, the development of programs to improve the physical and psychological health and safety of students, and the effectiveness and efficiency of instructional delivery.

Specific responsibilities of school psychologists vary widely and depend on a number of factors: where school psychologists work, academic preparation and specialization, degree (e.g., specialist versus doctorate) and licensure obtainment, size and location of the employment setting, and state laws governing educational practices and services. Although the majority of school psychologists work in public and private school districts, many are also employed in clinics and hospitals, universities, residential settings, and private practice. Some responsibilities performed by school psychologists working in school districts (e.g., serving on Individualized Education Plan team meetings) are not likely to be performed in other settings. Academic preparation (e.g., extent of counseling focus), specialization in a particular area of study (e.g., autism, behavior disorders), and the obtainment of a certain degree or license may impact a school psychologist's employment setting and job description. For example, a doctorate degree is the minimal requirement for employment in private practice.

School psychology practices are guided by federal legislation, state legislation, and case law; thus, variability exists between states. All school psychologists are impacted by a prominent federal special education legislation known as the Individuals with Disabilities Education Improvement Act (IDEIA), among others, although states may make even more stringent requirements as they are permitted some flexibility in how they implement the federally mandated services. For example, IDEIA requires that assessments be conducted in a multifaceted, multi-informant, and nondiscriminatory nature, yet school districts differ in their current assessment practices for identifying learning disabilities (i.e., some administer traditional standardized testing while others use brief, repeated measures of performance to monitor students' responsiveness to appropriate and increasingly intensive interventions).

Differentiating school psychology from related fields in education and psychology is particularly important due to overlap that exists between services provided and academic preparation, as well as the widespread tendency to equate school psychology with school counseling. Compared to school counselors, school psychologists tend to receive more training in individual assessment methods and intervention techniques, have historically focused more on students with disabilities, and often have more schools and larger numbers of students to serve. Although the terms *educational psychology* and *school psychology* are sometimes used interchangeably, they have separate divisions within APA (15 and 16, respectively), with the former placing a greater emphasis on research and the latter on applied practice. School psychology programs are often found in university departments of education, although occasionally they are enveloped in psychology departments. School, clinical, and counseling psychology are collectively considered the three health care areas of professional psychology, all of which can lead to the title of board-licensed psychologist. Despite the similar focus on working with children, adolescents, and families, clinical

and counseling psychology generally do not prioritize school and educational issues.

Changes in the field of school psychology are continually occurring, enhancing the effectiveness of the field by identifying demands on the profession and assessing the current ability to meet those demands. One major trend is the shift from the focus on assessment practices for purposes of identifying students for special education eligibility (leading to school psychologists being described as "gatekeepers" to special education services) to a tiered-model of preventive service delivery. Specifically, primary prevention activities (directed at entire classes, schools, or districts), or at least secondary prevention activities (i.e., early identification and intervention of academic, social, and emotional issues), are being stressed to reduce the need for more individualized, intensive, costly, and potentially stigmatizing interventions later [5]. Also, the emphasis on training culturally and linguistically diverse school psychologists, or at least preparing psychologists that are knowledgeable and sensitive to cultural issues that impact child development, family functioning, and academic skill acquisition, continues to increase, especially in response to the growing population of students who are bilingual and monolingual enrolling in public schools in the United States. As Reschly and Ysseldyke [4] contend, "the past is not the future" for school psychology, especially considering the current paradigm shift toward increased problem-solving, accountability, and practices designed to make improvements in the lives of children rather than mere predictions. Substantial changes are expected to occur on an international level, considering that school psychology is still in its infancy in many countries [2].

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School Readiness

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Synonyms

Academic readiness; School adjustment; School transition

Definition

School readiness refers to the competencies a child possesses upon school entry that are essential to academic and social development.

Description

School readiness has been emphasized as early as 1836, after compulsory education laws were passed which mandated all children to attend formal education. During the past 40 years, there has been an increase in early childhood programs as well as research literature investigating school readiness. Programs began to foster and teach academic and social skills that are necessary for all children to develop in order to succeed in school. During this time, early childhood programs were targeted at low-income children in hopes of enhancing their development through educational, health, and family services. The rising concern and awareness of the importance of young children entering school with adequate skills have been a result of initiatives and policies such as the National Education Goals (2000), the National School Readiness Indicators Initiative (2004), and the reauthorization of the School Readiness Act (2005). These policies support individual success of young children around the country and require quality standards for early childhood programs.

Although school readiness has varied definitions, five areas of development are considered to be the most significant domains of a young child and should be assessed by educators and families upon school entry: (1) physical well-being and motor development, (2) social and emotional development, (3) approaches to learning, (4) language development, and (5) cognitive development and general knowledge.

Physical well-being and motor development include the child's physical health status, disabilities, and motor abilities, such as gross and fine motor skills. Social and emotional development refers to the child's ability to interact appropriately with others and self-regulate their emotions and behaviors. This type of development allows the child to interpret and express their own feelings as well as understand feelings of other people. Approaches to

learning refer to the child's utilization of skills and knowledge, such as persistence and enthusiasm as well as the learning styles and habits a child uses to approach learning. Language development refers to the child's communication skills, such as speaking, and the beginning stages of literacy, such as print awareness and letter-sound associations. Lastly, cognitive development and general knowledge relate to the child's ability to develop thinking and problem solving skills which includes mathematical knowledge and imagination. All of these domains are considered complementary to one another and are taken together in order to understand how the child is developing.

Relevance to Childhood Development

The first five years of childhood are vital to development. Children are exposed to many experiences and environments, which set the stage for future development and learning opportunities. These experiences also shape the brain development of the child, given the rapid brain growth and neuronal connections during these years. Therefore, it is important to provide early opportunities for children to develop academic and social skills that will assist them to become ready for school. In addition to schools, children's families and communities help prepare them for school entry by providing enriched environments which support the child's development in the physical, social, emotional, language, literacy, and cognitive domains.

Researchers have investigated children attending high-quality early childhood education programs (e.g. Pre-Kindergarten) and have found various benefits. These include increased cognitive and language development, increased reading and math achievement, and the promotion of social and behavioral skills in children. These skills, when present at school entry, are likely to have positive, long-term effects which persist into elementary school and are strongly correlated with later skills. Low-income children, who are typically considered to have unfavorable educational outcomes, also benefit from attending high-quality early childhood education programs. These programs build a strong foundation of learning and teach necessary skills for school entry.

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School Situations Questionnaire

▶Barkley School Situations Questionnaire

School Transition

▶School Readiness

School-Entry Skills

▶Learning Readiness

Scop-Dex (Mixture with Scopolamine)

▶Dextroamphetamine (Dexedrine, Dextrostat)

Second Generation Antipsychotics

▶Atypical Neuroleptics

Secondary Encopresis

►Encopresis

Secondary Process

►Reality Principle

Secondary Reinforcement

►Token Economies

Second-Culture Acquisition

►Cultural Assimilation Model

Secular Trends

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Definitions

Marked changes in physical development that have occurred over generations.

Description

Secular increases in height, weight and early maturation are currently the subject of multiple studies. Childhood growth rates have increased dramatically over the past 50–100 years. Advancement in medicine and technology as well as marked increases in standard of living and nutrition have been cited as core factors in secular trends over the past century. Secular increases in the areas of *maturation* and *growth* have been observed in developed countries, while underdeveloped countries have exhibited modest to no alteration in these areas. Improved environmental conditions within a general population have resulted in secular increases, while delayed size and maturation may be attributed to the presence of negative or adverse conditions. Industrialized and developing countries are also witnessing an increased elderly population, increased life expectancy and decline in mortality.

Relevance to Childhood Development

The most important and widely studied aspect of secular trends is the age of onset of *puberty* in girls. Recent comparison studies of the United States and other countries have provided conflicting data regarding the decreasing of the age of onset of puberty and the development of *secondary sex characteristics* in young girls. Factors affecting the age of onset include environmental conditions, ethnicity, geographical location, nutrition and race. According to studies, the age of puberty onset in American girls over the past 40 years has decreased from 0.5 to 1.0 years, with African-American girls maturing 0.5–1 year earlier than Caucasian girls. Studies suggest 1 in every 7 Caucasian American girls and 1 in every 2 African American girls develop breasts and pubic hair by the age of 8. Additionally, data suggest that the age of first menstruation of girls from the United States has decreased from 17 to 13. Data suggesting the decrease in puberty age of onset were supported during a study of Chinese schoolgirls in Hong Kong, where the sexual maturation median age is one of the earliest in the world; the median age of puberty onset was 9.78 years, pubic hair development was 11.6 years and menarche was 12.4 years. While the United States and other countries have displayed a decrease in age of onset of puberty, the trend was not supported during an evaluation of Northern European countries. Several theories have been purported to explain the decrease in puberty onset age including weight gain, hormones in meat and milk, and sexualized images provided by the general media. Additional theories are being considered, but possess insufficient data and further research is required.

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Selective Attention

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Synonyms

Focused attention

Definition

Selective attention refers to the ability to maintain a cognitive set in the presence of background noise or distraction [1]. Selective attention acts like a filter that blocks some channels while allowing others to be processed [2]. While Sohlberg and Mateer [7] distinguished between focused and selective attention by relating the "ability to respond discretely" to specific stimuli to the focusing aspect of attention and the capacity to avert distractions to selective attention, Miller [4] suggested that selective attention has been used as an interchangeable term for focused attention in the neuropsychology literature.

Description

Models of attention commonly divide attention into component processes such as alertness/arousal, selective or focused attention, divided attention, alternating attention, and sustained attention or vigilance, of which selective/focused attention is one of the most studied aspects in attentional functioning [3, 8]. Vanderploeg [10] additionally indicated that there is a great deal of overlap among the various attentional models built; selective attention or an attentional focus is one of the six basic factors appearing to encompass the components described by the different researchers. Other basic factors of attention proposed include arousal, capacity, control of the attentional capacity system, sustainability/vigilance, and appraising of stimuli.

Selective attention involves initial concentration directed toward a particular activity and then execution of inhibition of responses to some stimuli over the targeted activity; it enables an individual to choose to pay attention to a specific stimulus and ignore potential external and internal distracters [4]. Mirsky [5] illustrated the ability to scan an array of stimuli and selectively respond as focus-execute, in which focused attention is the perceptual ability to scan a stimulus array, while the execute component is the ability to make a response. Similarly, Lezak [3] refers to selective attention as the capacity to highlight important stimuli or ideas being dealt with while holding the awareness of competing distractions in check. Such capacity is commonly referred to as concentration.

Neuroanatomy of Selective Attention

According to Mirsky and his colleagues [5], the brain structures involved with the regulation of selective/focused attention are the superior temporal cortex, the inferior parietal cortex, and the corpus striatum structures (including the caudate, putamen, and globus pallidus). Posner and Peterson [6] believed that selective attention was linked to the functions of the anterior cingulate and the supplemental motor areas.

Relevance to Childhood Development

Most investigators conceive of attention as a system in which processing occurs sequentially in a series of stages within different brain systems involved in attention. Disorders of attention may arise from lesions involving different points in this system. An attention task requires a focused, selective, sustained, and effortful performance; therefore, assessing the performance of the various points in the attention system will be imperative in indicating aspects of impairments in attentional functioning. Examples of neuropsychological tests that measure selective attention include the Auditory Attention subtest of the Woodcock-Johnson III Tests of Cognitive Abilities (WJ-III) [9] and the Stroop Color-Word Test (SCWT). On the WJ-III, the examinee must overcome the effects of auditory distractions (background noise) to understand oral language. On the SCWT, the examinee is required to selectively attend to the color of the ink that the word is printed in and name that color while ignoring the word itself that actually names a color that is different from the color of the ink [4]. Slow or hesitant performance on this part of the Stroop task may be indicative of difficulty concentrating and warding off distractions, which may suggest impaired selective attention [3].

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Selective Mutism

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Synonyms

Aphasia voluntaria; Elective mutism; Functional mutism; Mutism; Reluctant speech; Voluntary mutism

Definition

Selective mutism is a type of childhood anxiety disorder in which a child does not speak in certain social situations where speech is expected despite speaking in other situations. The child's mutism must persist at least 1 month (not including the first month of school), and the mutism cannot be due to a lack of comfort with or knowledge of the language required in the social situation. The child's silence must not be better accounted for by other disorders (e.g., communication disorder, pervasive developmental disorder, schizophrenia), and this disorder is typically presented before age 5 years; however, it may not be identified until the child enters school. Finally, the child's failure to speak must interfere with his or her educational or occupational functioning or with his or her social communication [1]. In the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* the term Selective Mutism replaces the former term, elective mutism. This change in terminology better reflects the non-oppositional nature of the disorder.

Description

Selective Mutism (SM) was first identified as aphasia voluntaria by Kussmaul in 1877 as being a condition where individuals who had the ability to speak would not speak in certain situations or to certain individuals. Children with selective mutism consistently fail to speak in certain social situations where speaking is expected, such as in school or with peers. However, these children do demonstrate the ability to speak in other situations. Often, a child with selective mutism will speak at home but not in a school or community setting. The child may communicate in nonverbal ways such as with gestures of the body, hands or head or by pushing and pulling. In some cases the child may make short mono-syllabic utterances or use an altered voice. Children with selective mutism are often shy, socially withdrawn and afraid of embarrassment.

Selective mutism has historically been characterized as a rare disorder with prevalence rates of less than 1% [1]. However, according to a study conducted by Kopp and Gillberg [13], the prevalence rate may be much higher. Moreover, selective mutism appears to be more prevalent in girls in clinically-referred samples [14]. In clinical settings, children with selective mutism are usually also diagnosed with an anxiety disorder, often social phobia.

Etiology of SM. The cause of selective mutism is unknown; however, recent work in the literature indicates that selective mutism may be a variant of an anxiety disorder, specifically social phobia [3], and may represent the severe end of the spectrum of social anxiety and speech inhibition [4]. Often there is a close relative or parent who has a history of exhibiting significant shyness, anxiety disorders and/or SM [17]. Other possible theories proposed as explanations for the cause of SM suggest that it is the result of traumatic experiences such as abuse, divorce, death, a life threatening experience and moving frequently [15].

Assessment of SM. When assessing for SM it is important that a comprehensive evaluation is conducted to rule out any other disorders. A comprehensive assessment should include a physical examination and medical history, and a developmental history of language, motor, cognitive, and social milestones. Psychological assessment of the child's current social and emotional functioning is necessary along with assessment of the child's cognitive and academic skills. In order to aid in treatment planning, a functional behavioral assessment should be completed to determine in what settings and to whom the child speaks so that intervention may target those settings and individuals [9].

Relevance to Childhood Development

Given that one of the diagnostic criteria of selective mutism is impairment in educational functioning and/or social communication, children with this disorder typically present with academic and social/emotional

difficulties such as delayed word attack and oral reading skills, limited opportunities for social interaction, and less involvement in school activities. Moreover, the ability of teachers and other school professionals (e.g., school psychologists) to assess academic and intellectual functioning may be impaired due to the child's reluctance to speak when queried. Because a child's mute behavior becomes more entrenched without intervention as time passes, and because of the possible negative impact of selective mutism on a child's educational and social functioning, early intervention is most beneficial [10]. Chronic anxiety symptoms can develop into adult social anxiety or social phobia, and people who were afflicted with selective mutism as children may continue to experience discomfort in social situations and difficulty conversing with others.

Although selective mutism is classified as a Disorder Usually First Diagnosed in Infancy, Childhood, or Adolescence, some researchers suggest it would be better categorized as an anxiety disorder. This conceptualization informs current treatments. Treatments include psychotherapy, cognitive-behavioral therapy and/or medication. It is important to identify and treat any specific speech or language related problems. Medications used to treat social phobia have been used successfully to treat children with selective mutism. Research indicates that selective serotonin reuptake inhibitors (SSRIs) may be the most effective type of medication in cases of selective mutism that are resistant to behavioral and psychosocial treatments; SSRIs include fluvoxamine (Luvox), sertraline (Zoloft), and fluoxetine (Prozac). Interventions that focus primarily on family functioning have shown some effectiveness, but current treatment trends that call for integrating families into treatment implementation are gaining popularity. Behavioral techniques incorporating the child and the environment into the assessment and intervention process are the most frequently used methods and are quite effective. Systematic desensitization is one type of behavioral intervention that has been applied to selective mutism. Behavioral interventions that include the use of reinforcement, token procedures, self modeling, self monitoring, prompting, stimulus fading, and response initiation procedures have proven to be successful in treatment [15]. The most effective treatments include an in-depth analysis of the child and the environment in order to design treatment plans that are tailored to the client. These treatments focus on altering the interpersonal and environmental factors that are contributing to symptoms of selective mutism. Multidimensional approaches address behavior and family systems and may incorporate medication if acceptable to the family.

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Selective Serotoninreuptake Inhibitor (SSRI)

►Paxil (Paroxetine)

Self

►Self-Concept

Self Identity: Sexual Abuse of Adolescents

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Synonyms

Child rape; Sexual assault; Sexual exploitation; Sexual maltreatment; Sexual molestation; Sexual victimization

Definition

Child sexual abuse is sexual contact with a child that occurs as a result of force or in a relationship where it is exploitative and unequal because of an age difference or caretaking responsibility. Sexual abuse appears to disrupt the progression of self-identity formation; these disturbances may include identity diffusion, fragmentation of self, and distortions in body image.

Description

A wide variety of behaviors are encapsulated in the definition of child sexual abuse, including rape, molestation, prostitution, or incest with children and the creation of pornography. In addition to certain sexual behaviors, child sexual abuse has a number of characteristics. These include lack of consent, ambivalence, exploitation, secrecy, force, and intent [1]. Prevalence studies reveal that females are the most frequent victims of child sexual abuse, but males are likely to be abused at earlier ages, for shorter durations, and the perpetrator is more often a stranger or nonrelative. Sexual abuse can occur at any point from infancy through adolescence [1, 2]. For all children, poverty has been found to be an important risk factor. For girls, other factors that increase the risk of victimization include: the presence of a stepfather; a sexually punitive mother; living separately from the mother; emotional distance from the mother; and having two or fewer childhood friends [1, 2].

Relevance to Childhood Development

Depending on their developmental stage, children may be particularly susceptible to the adverse effects of sexual abuse due to their dependency on adults for care and protection, their limited ability to influence the events and environment in which they live, and their cognitive and emotional developmental level [3]. A number of interactive factors probably make a significant contribution to the development of negative self-representations in sexually abused children. The age at which the first abusive incident took place, the duration and severity of abuse, the relationship of the perpetrator to the child, and the use of force by the perpetrator, collectively influence the severity of psychological symptoms that present during and following sexual abuse [1, 3–6].

The literature concerning the psychological consequences of sexual abuse for the period of childhood and adolescence indicates a broad range of adverse effects including affect dysregulation, disruptive and aggressive behaviors, precocious sexualized behaviors, insecure and atypical attachment patterns, sexual identity confusion, impaired peer relationships, conversion disorders and academic underachievement [4–10]. Progression of the psychological effects of child and adolescent sexual abuse is associated with particular psychiatric disorders. Adult psychiatric outcomes that are frequently reported and associated with sexual abuse include borderline personality disorder, eating disorders, obsessive-compulsive disorder, substance use disorders, anxiety, depression, posttraumatic stress disorder, phobias, sexual disorders, multiple personality disorder, panic disorder, and somatization disorder. Suicidal ideation and attempted suicide are also very common among victims of childhood sexual abuse [1–6, 8, 10, 11].

A number of core psychopathological features appear to be shared by the different psychiatric disorders to which victims of abuse appear to be most susceptible to. Disturbances in sense of self, are involved in the majority of these disorders ranging from the identity diffusion of borderline personality disorder to the fragmentation of self fundamental to multiple personality disorder. Profound distortions in body image can occur in the eating, dissociative, and somatoform disorders. All of these disorders show evidence of high rates of self-injurious behavior including self mutilation, suicide attempts, and risk taking which constitute a sign of

fundamental problems with self-esteem, internal conflicts, and estrangement from self [2, 9]. Sexual abuse therefore appears to disrupt the progression of self-identity formation.

The pubertal period contains multiple developmental tasks. Adolescents must establish a new and positive sense of self; choose an adult role; develop the capacity for intimacy and achieve mature sexual expression; establish strong intimate interpersonal relationships particularly with peers; initiate the process of developing autonomy, and crystallize their personal value systems [13]. Even though sexual abuse significantly compromises the adolescent's ability to accomplish each of these important tasks, the most commonly reported adult outcome of childhood sexual abuse is a severe disturbance in the individual's sense of self [5, 6, 9]. Several studies indicate that the intrinsic helplessness and powerlessness associated with child sexual abuse may result in a diminishment of the child's developing sense of his or her competencies, locus of control, and efficacy, and in severe difficulty defining and integrating different aspects of the self [1, 12, 13]. The effects of this inability to acquire a coherent sense of self appear to be long-term.

Data on the relationship of abuser to victim indicate that predominantly in the case of abuse by a family member, the victim's sense of trust is violated [1]. Close relatives, who would, under normal circumstances, serve as objects for identification and introjection come to be viewed by the abused child as punitive, rejecting, dangerous, and deceitful. In addition, children may integrate elements of their abuse into basic beliefs that subsequently function as a universal model of self, others, and the world [4, 6–8]. The individual may have conflicting thoughts and feelings about the self. Self-identification as a "victim" may result in low self-esteem and create a pattern of self-destructive behavior [6]. These core relational schemas seem to hinder the individual's later ability to create and maintain meaningful interpersonal attachments [4, 8, 9]. Relational disturbance generally comprises conflictual or chaotic relationships, problems with forming intimate adult relationships, and behaviors that are likely to disrupt close relations with others [8].

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Self Management

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Synonyms

Self-monitoring; Self-regulation

Definition

Self-management is an intervention technique used to help students manage the accuracy and amount of work completed in a given time frame using a checklist or form [9]. This technique is also helpful in establishing increased levels of autonomy for career, personal, and extra-curricular activities [4].

Description

In many classrooms, behaviors such as inattention or disruption may prevent students from actively engaging in academic activities or on-task behaviors [2]. The amount

of time a student spends actively thinking about or working on academic content [2] is determined by various internal and external factors such as Traumatic Brain Injury (TBI), Post Traumatic Stress Disorder (PTSD), Emotional Disturbance (ED), poor executive functioning, depression, temperament, adjustment issues, etc.

Students who have trouble focusing, are off-task, or engage in problem behavior can improve their academic achievement using self-management [9]. Individuals with disorders (e.g., ADHD or Autism) requiring behavior modification can benefit from self-monitoring as well [4].

Some of the steps of a self-management intervention include: (1) Identify the purpose or benefits of the student discontinuing their off-task/problem behavior; (2) ask the student to help with the self-management plan along with ideas for rewards or incentives (the rewards need to be powerful and occur frequently to sustain self-management behaviors); (3) create a user friendly self-management form that does not require much work for anyone involved (see Figs. 1 and 2); (4) demonstrate, model, or train how the self-management form or recording device will be used; (5) provide a small amount of time (e.g., 5–15 min) to check for understanding in relation to the self-management form and plan; (6) examine progress with the student and slowly lessen involvement with a goal of having the student function without an outside reinforcement system.

Get class notebook out.
_____Yes ____No

Get out pencil and copy off the board.
_____Yes ____ No

Write down class or homework assignment.
_____Yes ____No

Look at teacher when she is talking and raise hand to answer.
_____Yes ____No

Self Management. Fig. 1 Sample self-management form 1.

Get out paper for classroom assignment.
_____ ☺
_____ ☹

Raise my hand at least 2 times to answer questions.
_____ ☺
_____ ☹

Stay in my seat for 10 minutes
_____ ☺
_____ ☹

Work on assignment for 20 minutes without talking.
_____ ☺
_____ ☹

Self Management. Fig. 2 Sample self-management form 2.

Relevance to Childhood Development

One major objective in education is to cultivate self-sufficiency and autonomy for childhood, adolescence, and life. Self-management has extensive utility for children and adolescents with or without disorders and can be modified to help multiple types of learners. Research also suggests that self-monitoring is a useful practice that assists in developing proper social skills. This technique can help decrease or extinguish behaviors that lead to negative labels (e.g., lazy, trouble maker, etc.), which lead to self-fulfilling prophecies manifested in the classroom. Furthermore, self-monitoring can build an increased sense of control over one's actions.

Research studies show that self-management techniques can improve academic achievement, improve on-task behavior, and decrease problem behavior. Additionally, self-management requires the student to review their own behavior and determine if they are succeeding or are in need of improvement [10].

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Self-Actualization

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Synonyms

Self-fulfillment

Definition

Self-actualization is the tendency to actualize and the desire for self-fulfillment. This includes the desire to reach full potential and become what one is capable of becoming.

Description

The term self-actualization was first introduced into the psychology field by Kurt Goldstein, an organismic theorist, but was popularized and expanded on by Abraham Maslow who included the concept in his well-known developmental theory: Maslow's Hierarchy of Needs.

Maslow's Hierarchy of Needs consists of five tiers often depicted in pyramid form with the most basic needs at the bottom. The hierarchy begins with the Physiological needs, which include food, water, breathing, sex, and sleep. The second tier includes needs related to Safety and security such as physical health, resources such as money, nurturance, and shelter. The third tier represents the need for Love and Belonging by family, friends, and intimate partners. Esteem makes up the fourth tier and includes self-esteem, confidence, need for achievement and recognition, and respect for self and others. The fifth and final tier is the need for Self-actualization, the realization of one's full potential and the desire to reach that potential. In addition to the five levels of the hierarchy, Maslow discussed the importance of cognitive and aesthetic needs in facilitating the journey towards self-actualization.

This hierarchical system was established to capture the dynamic, interrelated events and behaviors that make up the developmental process. Maslow proposed this prepotency hierarchy where human behavior is dominated by the lower, more basic needs. Achievement of or interest in a higher need usually requires the fulfillment of a lesser need. For example, if one is hungry or lonely their energy and cognitive resources will be spent meeting those needs and not attempting to conceptualize and understand their full potential as an individual.

Characteristics of self-actualization include living in the present moment, being spontaneous and creative, trusting oneself and one's decisions without fear of regret, and being open to all possibilities. Achieving these characteristics requires that an individual has sufficiently met all other needs in the hierarchy.

Successful matriculation through the previous four tiers does not always result in self-actualization. Self-actualization is a process that can only begin when all other needs are met; this process may never be completed during a lifetime.

Relevance to Childhood Development

Maslow's Hierarchy of Needs, including self-actualization, can be incorporated into many of the other well-known theories of human development in that most theories include the attainment or development of certain behavioral and emotional characteristics. Maslow's hierarchy, like many of the developmental stage theories, is a progression; a child must accomplish goal A before goal B can be addressed.

During infancy and early childhood, individuals rely on others for fulfillment of their basic needs including food, water, safety, love, and eventually esteem. Many environmental factors can influence whether or not children's needs are met including socioeconomic status, parental/guardian resources, and quality of education. It isn't until adolescence or early adulthood that individuals move toward becoming solely responsible for fulfillment of their needs. An individual's ability to fulfill their own needs in adulthood often depends on how successfully their caregivers fulfilled their needs as a child. If, and only if, all environmental factors provide for a healthy development will an individual have the potential to reach the level of self-actualization in adulthood.

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Self-Annihilation

►Suicide

Self-Care

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Synonyms

Adaptive behavior; Resiliency; Self-treatment; Stress management; Stress reduction

Definition

Self-care includes the decision and actions used with the intention of enhancing a healthy lifestyle. Among helping professionals it is a tool to avoid compassion fatigue and professional burnout [1, 3, 4].

Description

Self-care is essential to prevent burnout, stress, and compassion fatigue particularly among members of the helping professions. Exercising, meditation, Tai Chi, reading, listening to music, and eating balanced meals are examples of self-care. Any form of self-care is more effective when an individual is able to maintain a healthy perspective [2, 5]. When a mental health professional's psychological and/or physical health affects their work, their ability to help their clients begins to be compromised thus creating a possible ethical problem.

Therapists, crisis responders, medical professionals, police and firefighters, animal shelter workers, and veterinarians are but a few examples of people who experience loss and trauma that results in serial grieving. Critical Incident Briefing was implemented to facilitate some immediate release of emotions for these individuals. This response became increasingly important after the Oklahoma City bombing when a year later the suicide rate among the emergency responders was much larger than expected. In 2001 during the aftermath of the terrorist attacks, critical incident debriefers were on site to assist professionals during their breaks. Health care professionals spend many years studying to prepare themselves to be well trained. Self-care should be equally emphasized and not seen as self-indulgence.

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Self-Care Behaviors

►Activities of Daily Living

Self-Care Development

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Synonyms

A personal skill of caring for oneself; Thoughtful attendance to oneself

Definition

Self-care development involves the progressive expansion of skills related to caring for oneself that are refined by experience, direct instruction and maturity. Self-care includes the ability to improve, restore and maintain one's own personal health and psychological wellness [2].

Description

Self-care involves any activity of caring for personal needs. These needs may be addressed physically such as eating or exercising to maintain a healthy body or psychologically

such as moving away from potentially dangerous situations or emotions. Self-care strategy development has also been linked to self-sufficiency and self-management. Developmental milestones in evaluating normal child growth often consider personal self-management and care for self.

Self-care developmental techniques involve identifying explicit and implicit patterns of need and developing appropriate and socially acceptable strategies to respond and contribute to productive and functional personal growth and development. As the child grows and learns to meet personal needs, self-care can be observed in self-initiated behaviors. For example, the child moves from "falling asleep" to sleeping for rest for energy to play or to learn. Self-care might also be observed in verbal communications. With increasing skill and accomplishment, self-managed and self-determined goals related to self care are accomplished. As cognitive capacity and socialization develops so too does self-care. Self-care development is facilitated by creating an environment conducive to learning: teaching the child to listen to self, to identify internal and external needs, and to manage personal care will assist with development [3].

Self-Care Techniques

Developmentally, self-care techniques will change with maturity, skill and experience. For example, an infant cries as a technique for self care. By school age, telling the teacher about a bully may offer a more appropriate strategy and by adolescence, using self-reflective questions to identify triggers that create stressors may provide a foundation from which future self-care techniques develop.

Self-care techniques involve the development of self-managed, activity processing resources implemented in response to needs and desires. Building strong support systems and developing internal resources are important to maintaining a healthy lifestyle.

Relevance to Childhood Development

Self-care in children is an important part of individual development. It can be related to sense of identity, self confidence, independence and impacts social relationships both within and outside the family. Some self-care activities include: grooming, personal hygiene, physical activity, eating properly, and maintaining safety. These factors are beneficial to development; they involve the child in self-regulating a better quality of life. The family plays a critical role in the development of these self-care strategies. Family members teach children self-care through direct instruction and modeling and the child often learns these skills through trial and error and gradual approximations. Poor self-care choices often lead to greater behavioral problems that may impact daily lives and school. Poor self-care strategies can affect health as well as relationships with families or peers [1].

Importance of Parent–Teacher Relationships

Early childhood programs that promote communication between parents, children and teachers can help to build a strong working relationship in support of self-care. This communication can help early childhood professionals to better understand the parent's perception and to help them as they developmentally teach self-care techniques to their children.

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Self-Choice

►Autonomy

Self-Concept

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Synonyms

Self; Self-esteem; Self-image; Self-representation; Sense of oneself; Sense of self

Definition

An organized set of perceptions, cognitions, or evaluations that one holds about their abilities and characteristics.

Description

Social interactions, experiences, and the interpretation of those interactions and experiences that an individual has with their environment mold the self-concept. The perceptions that an individual holds about themselves and/or

abilities are influenced especially by reinforcements from those close around them such as parents, friends, other significant role models, and the attributions that individual gives for their own behaviors [1, 2]. Two distinct aspects of the self-concept that are interrelated in experiences include self-esteem and identity [3]. Self-esteem seeks out opportunities to enhance the evaluations one holds about themselves whereas identity gives structure (to the self-concept) and stabilizes the self in social systems. The self-concept is seen as multifaceted and hierarchical because the perception an individual holds about themselves encompasses various areas of life including social life (e.g., family, friends, religion) academic (e.g., school) and nonacademic activities (e.g., work, hobbies) [2]. In many scientific references, self-concept has been linked to individual achievement and correlations between it and other constructs examined [4]. Research suggests that it is possible for an individual to hold a positive self-concept in one area of life and a negative self-concept in another separate area. The evaluation an individual holds about themselves is not static and may change over time and across situations. Most changes to an individual's previous evaluation of themselves result from taking on new roles and/or life transitions [5]. Research has found that evaluations generally become more favorable over the lifespan, evaluations are represented by a moving baseline that is determined by situational factors, and that environmental stability plays a key factor in evaluation stability [5]. Research has also described the self-concept as the "working" or "assessable" self-concept due to its continually active state and the shifting amount of assessable self-knowledge available to the individual at a certain point in time [6]. The "working" self-concept lends support to the changing nature of the individual's self-evaluations across time and situations.

Relevance to Childhood Development

Self-concept begins to develop in children after becoming aware of themselves as distinct physical entities. Once the child recognizes their distinctness as a representation of the self, evaluations of the self are able to follow and can be seen in children as early as 18 months of age [7]. Behaviors that indicate a child has developed a concept of themselves include using self-referential terms (e.g., using their name or pronouns), use of evaluative words (e.g., dirty, bad, good), and references to competencies (such as saying "I can't" do something). During middle to late childhood (e.g., early elementary school years), self-concept is greatly shaped by self-perceived academic competence, social acceptance, and sports competence [8]. It is important during this time that children have positive feedback from parents, friends, and significant role models so they will not rely too heavily on their own self-perceived competency for evaluations, which could result in a lower self-concept. Research suggests children in middle to late childhood seek to maintain a positive self-image by utilizing overestimation, selective social comparison, and strategic association with others [8]. As the child continues to grow, life transitions and new roles taken will continue to shape and influence their self-perceived competencies and self-evaluations.

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Self-Consequating

►Self-Reinforcement

Self-Control

►Academic Delay of Gratification
►Impulse Control
►Inhibition
►Self-Regulation
►Temporal Discounting

Self-Destruction

►Suicide

Self-Determination

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Synonyms

Autonomy; Psychological freedom; Volition

Definition

Self-determination theory focuses on the extent to which individuals' behavior is self-determined versus controlled. When acting in a self-determined fashion, people experience a sense of freedom, choice, and volition during their activity engagement.

Description

Key studies on self-determination have been conducted by Edward Deci and Richard Ryan [1, 4, 5]. Within the self-determination theory, it is argued that the satisfaction of the basic psychological needs for competence, autonomy, and relatedness will energize individuals' autonomous engagement in an activity. Within self-determination theory, the concept of autonomy is contrasted with heteronomy and is differentiated from the concepts of independence versus dependence:

Autonomy versus heteronomy: When being self-determined one is acting in an autonomous or volitional way because the activity spontaneously emanates from one's emerging interests or is congruent with one's abiding values. Acting in a self-determined fashion means that one endorses one's action at the highest level of reflection such that one fully stands behind one's activity. The opposite of autonomy or self-determination is heteronomy, that is, feeling controlled to partake in the activity, either because external forces or intra-individual demands are pushing one to engage in the activity [5, 6].

Independence versus dependence: Self-determination or autonomy needs to be differentiated from the concept of independence. Independence refers to being self-reliant and making decisions without the interference of others. Independence is contrasted with dependency which implies relying on others for advice or help. One can act independently or remain dependent on others for both autonomous (self-determined) or heteronomous (non-self-determined) reasons. Thus, people may volitionally choose to act independently (i.e., autonomous independence) or people may feel pressured to act independently, for instance, out of rebellion against controlling authorities (i.e., heteronomous independence). Conversely, people may volitionally turn to others for advice (i.e., autonomous dependence) or people may feel pressured to rely on others (i.e., heteronomous dependence) [7, 8].

Relevance to Childhood Development

From the perspective of separation-individuation theory, development towards independence implies that adolescents increasingly take responsibility for themselves without strongly depending or relying on their parents. This development would be particularly salient during adolescence and would contribute to maturity and psychosocial adjustment primarily during adolescence. In contrast, autonomy or volitional functioning as defined in self-determination theory is thought to be essential to optimal human development across the lifespan. Research has shown the importance of interpersonal support of autonomy for individuals' adjustment from early childhood to late adulthood [2].

Within self-determination theory, an autonomous versus controlled functioning is said to result from being exposed to an autonomy-supportive versus controlling environment. The provision of choice by parents and teachers represents one key ingredient of an autonomy-supportive environment that will promote autonomous functioning. In line with this, several studies have convincingly demonstrated that choice provision does increase one's interest and subsequent persistence at the activity at hand. However, children cannot be provided with unlimited freedom to fully choose their own course of action as parents, teachers and other socializing agents will introduce various norms, rules and regulations over which children have little or no choice. Although choice is constrained in these situations, children can still volitionally stick to these rules or freely adopt the norms that are transmitted to them. The volitional acceptance of these norms and rules will be facilitated when parents and teachers at home or in classroom settings succeed in presenting rules and instructions in an informal fashion rather than in a controlling manner [3]. This will be the case when the presented rules and instructions are sufficiently explained (rationale provision) and when socializing agents empathically solicit children's opinion when these rules and norms are introduced. When teachers and parents are controlling, however, they tend to use controlling reward systems or severe punishments; they will rely on evaluative systems, make use of strict deadlines and will use controlling language ('should'; 'expect') as to ensure compliance. However, such controlling environments do yield a substantial cost as indexed by reduced

interest in the activity at hand, lowered creativity and decreased well-being. Thus, from the self-determination perspective, it is fundamental to create an autonomy-supportive (i.e., volition promoting) environment if one is to facilitate children's well-being and growth.

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Self-Directed Learning

►Self-Regulation

Self-Discipline

►Self-Regulation

Self-Efficacy

Definition

Self-efficacy refers to the beliefs that individuals have about their capabilities to complete a particular task successfully.

Description

Bandura, acknowledged as one of the principal initiators of self-efficacy theory, suggested that one's perceived self-efficacy has a powerful influence over one's choice of an activity, the kind of effort one expends, and how much one is able to maintain that effort in the face of difficulty. Consequently, self-efficacy beliefs have been proposed to influence children's motivation.

Schunk suggested that there are four leading sources for how children develop their self-efficacy level for a given achievement. These four sources are: past performance accomplishments, vicarious experiences, forms of persuasion, and physiological indexes. Schunk explained that learners who have had positive past experiences with a learning task tend to develop higher self-efficacy levels than those with negative experiences. As learners observe successful performances of peers, they also develop high self-efficacy levels. Learners who have been convinced by an authoritative figure that they are capable tend to see themselves as capable too, thus developing high self-efficacy. Lastly, learners who tend to have low anxiety symptoms when performing a task, as would be indicated by changes in heart rate, will likely interpret the situation as one for which they have high self-efficacy.

In general, success raises efficacy and failure lowers it. Lowered efficacy can affect children's motivation negatively, although once a child develops a strong sense of efficacy, one or two occasions of failure will not have much effect. Self-efficacy is not a personality trait or part of one's character, and there is no such thing as a "self-efficacious" person. Rather, self-efficacy is an appraisal that one makes and a belief that one has about his or her competence to succeed at a particular task, similar to one's confidence level, although confidence is more global. Self-efficacy is situation specific, a context-specific assessment of competence to perform a *specific task*.

Relevance to Childhood Development

Children tend to behave in ways that are consistent with their perceptions about themselves. Those who have positive beliefs about themselves tend to put in more effort, persist in the task, use effective strategies, and are therefore more successful in school. Young children often develop self-efficacy based on their own improvement over time while older children tend to evaluate themselves based on how they compare to their peers.

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Self-Esteem

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Synonyms

Self-concept; Self-image; Self-worth

Definition

Self-esteem is defined as a person's evaluation of their own self-worth.

Description

Self-esteem is how positively or negatively a person views their worth. People who have a favorable global evaluation of themselves are said to have high self-esteem, while people who have an unfavorable global evaluation of themselves are said to have low self-esteem. High self-esteem has been shown to have a strong relationship with life satisfaction [1] and with happiness [2]. Studies have also demonstrated a correlation between self-esteem and other attitudes and behaviors, such as school performance, but it is important to note these correlations are not always strong and that these correlations do not mean causality. While it is possible a person with high self-esteem will get good grades, it is also possible that a person will get good grades and then view themselves more positively and thereby increase their self-esteem [3].

One of the most common methods of measuring self-esteem is a self-report measure called the Rosenberg Self-Esteem Scale [4]. The scale consists of ten questions with the choices of Strongly Agree, Agree, Disagree, and Strongly Disagree. As with other self-report measures, it is impossible to know for certain if the respondent truly believes in their replies or if their replies are an attempt to appear socially desirable. Also, one of the issues with using a self-report measure for self-esteem is that the answers rely on the respondent's perception and not necessarily on reality. For example, people with high self-esteem may claim to be more attractive and intelligent than the average person, but their peer ratings of their attractiveness and their IQ scores might not differ from the average person [5]. People with high self-esteem also claim to be more popular and socially adept, but when judged by their peers, they again appear to be average [3].

While there are benefits to high self-esteem, such as happiness and life satisfaction, there are also potential drawbacks such as aggression and prejudice. Low-self esteem was once theorized to be the cause of violent and aggressive behavior, but recent theories postulate the opposite. When people with overinflated judgments of their self-worth are threatened, they are more likely to become aggressive [6]. Evidence has also shown people are more likely to become more prejudiced when their self-esteem is threatened. Individuals who had an experimental threat to self-esteem were able to restore their self-esteem by derogating out-group members [7].

While self-esteem can be related to self-concept and self-efficacy, they are not exactly the same. Self-concept is defined as our knowledge of who we are and can include our physical characteristics, our psychological states, and our considerations of how other people may judge us. Self-efficacy is defined as the belief in one's ability to carry out specific actions that produce desired outcomes in a particular domain [8].

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Self-Evaluation in Academic Settings

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Synonyms

Self-reflection; Self-regulation; Strategic thinking

Definition

Self-evaluation is a key regulatory process through which an individual compares self-generated or externally-provided performance information to personal standards or goals [1, 2].

Description

Self-Evaluation Within a Self-Regulation Framework

Several theoretical models of self-regulated and strategic learning have been developed over the past few decades to enumerate the basic mechanisms and processes through which students exert control over their learning, skill development, and pursuit of personal academic goals [3]. From a social-cognitive perspective, self-regulated functioning involves self-generated thoughts, feelings, and behaviors that are planned and cyclically adapted based on performance feedback in order to attain self-set goals. Zimmerman proposed one such cyclical model that depicts self-regulation in terms of three sequential phases: forethought (i.e., processes that precede efforts to learn or perform; goal setting and strategic planning), performance control (i.e., processes occurring during learning efforts; self-monitoring and self-control), and self-reflection (i.e., processes occurring after learning or performance; self-judgments and self-reactions) [1]. These phases are hypothesized to be interdependent so that changes in forethought processes will induce changes during the performance phase which will, in turn, influence self-reflection processes. A self-regulatory cycle is completed when self-evaluation processes influence forethought beliefs and behaviors during future learning efforts.

The act of self-reflection is a multi-faceted decision-making component of the cyclical loop whereby individuals engage in various types of self-judgments (i.e., self-evaluation, causal attributions) and evaluative reactions (i.e., satisfaction, adaptive inferences). Each of these reflective processes have been shown to be significant predictors of student achievement and motivational beliefs [4–6]. For example, individuals who attribute success and or failure to controllable factors, such as strategy use and effort, and who exhibit positive adaptive inferences, such as modifying strategies following failure, will typically demonstrate enhanced levels of achievement and more positive perceptions of efficacy, task interest, and satisfaction [4, 6]. In other words, when individuals engage in self-reflection phase processes and focus on their use of strategies or other personal processes, students are more likely to sustain high levels of motivation and strategic planning.

However, before students immerse themselves into attribution and adaptive inference reflections, they must first self-evaluate how their current academic performance compares to a personal or objective standard. Ultimately, identifying a performance outcome as successful or unsuccessful sets the stage for further self-reflective thought and action. The goal of this brief entry is to illustrate the process of self-evaluation, with particular emphasis placed on the nature and type of evaluative standards used to judge performance outcomes. Research has shown that the type of standards one uses to evaluate a performance has important achievement, regulatory, and motivation implications [4, 5]. Examples of applied self-regulation intervention programs that emphasize self-evaluation will also be presented.

Nature of Self-Evaluative Standards

In order to self-evaluate performance and skill development, students need to employ a standard or benchmark as a point of comparison. These standards take many forms and can vary across source, type, and level of difficulty.

Sources of evaluative standards. Evaluative standards can be generated by external sources, such as parents, teachers, and curriculum developers, or by an individual student. In terms of external sources, parents who pressure their children to attain a minimum grade of B in all classes or a teacher who sets a standard of 90% homework completion for receiving bonus points are typical examples of how external standards might be imposed on students. Another external source, which tends to be more objectively and systematically-derived, involves curriculum benchmarks and/or basic academic skill levels. For example, researchers have established early literacy benchmarks for students in kindergarten that are typically used to determine the intensity and level of intervention services that students need to improve their reading skills [7].

All forms of externally-initiated standards are important in self-regulation models because they provide a benchmark against which students can judge the effectiveness or acceptability of their test grades or other performance indicators.

From an autonomy-supporting or self-regulatory perspective, however, one must be cognizant that external standards may or may not be used by students when evaluating their school-based performance if they do not accept these standards as relevant or important to their academic success. Motivation researchers have shown that when students are afforded the opportunity to develop their own goals or self-standards they will often become more interested and engaged in academic activities [8]. As a practical example, a 14-year old aspiring writer will not automatically use readily available external evaluative criteria, such as English course grade, as the basis for judging her writing skills if she does not believe or accept this grade to reflect her writing potential. In contrast, she may place greater emphasis and value on her normative performance (i.e., a top-three placement) in creative writing competitions. In this situation, the student will probably not become overly concerned about a grade of B in her English class, yet will experience significant emotional and motivation turmoil if she does not perform well in the writing competitions. In short, although evaluative standards can be self-generated or provided through external sources, they will be used most frequently and have the greatest impact on student behavior and motivation when they are personally meaningful or relevant to that student.

Types of self-evaluative criteria. Students can use different *types* of evaluative criteria to judge their competency and skills. Three common types of evaluative standards include: (a) mastery, (b) previous performance, and (c) normative [1]. These different criteria are important to consider because they can play an influential role on the conclusions and interpretations one generates about performance and personal competency. Mastery criteria typically involve using markers or benchmarks that represent core sets of skills ranging from novice to expert. Schools often use mastery criteria in their curriculum materials as well as part of the Individual Education Program (IEP) utilized within Special Education circles. This type of criterion is important because it focuses students' attention on key indices of skill development or progress towards an important academic outcome. The second type of criteria, called prior performance or self-criteria, is a standard that is used to directly assess growth by comparing prior outcomes of an individual to his or her current performance outcomes. Both mastery and self-criteria are emphasized in applied self-regulation intervention programs because they naturally direct students' attention and reflective thoughts on their own behaviors and outcomes, a necessary condition for nurturing the development of self-directed or regulated learners [9].

Normative comparisons are a third type of criteria that are commonly observed in school environments, particularly in settings which emphasize, either directly or indirectly, public displays of student performance. In short, students employing this type of standard evaluate their skills and performance relative to their peer group. Social comparisons can yield impressive motivational benefits for students, particularly for those who are high achievers, because they imply that students are more competent or capable than others. Unfortunately, when students struggle in school *and* rely on normative comparisons to judge their capabilities, there is a high probability that their sense of efficacy and competence and resulting motivation will be adversely affected [1]. Of greatest importance, however, is that reliance on normative standards shifts students' attention from personal progress and growth to factors that are largely unpredictable and out of their control. When academically at-risk students begin to focus much of their energy and attention on how their peers perform they can often lose sight of or fail to recognize actual progress that they are making; such as when a student improves her math test grades from a 69% to a 79% yet focuses only on the class average score 88%. If this student does not learn to monitor and evaluate progress based on self-criteria, she will probably not see the ten-point improvement in a positive fashion and may begin to exhibit adverse negative emotional and regulatory reactions, such as feelings of anxiety and incompetence.

Level of difficulty. The difficulty level of the standards that students use to judge their performance outcomes can also play an important role in cultivating adaptive or dysfunctional self-evaluations. Suppose a seventh-grade student, Natasha, earned science test grades between 65% and 72% over a 2 month period. In the hopes of increasing her performance, Natasha decided to establish a difficult and challenging goal of 95% for her science tests. On her next two tests she received scores of 77% and 79%, respectively. One of her classmates, Tony, earned identical science test grades but developed a more modest yet challenging science test grade standard of 83%. Despite exhibiting identical science test scores, it is highly probable that Natasha and Tony will evaluate their performances in qualitatively distinctive ways. For example, because Natasha's test performance fell far below her self-standard or goal she is at-risk for developing feelings of

dissatisfaction, anxiety, and low self-efficacy. In contrast, Tony is much more likely to interpret his grades of 77% and 79% as successes because he is increasingly getting closer to his standard of success. Similar to normative comparisons, when students develop and/or use personal standards that are overly difficult or challenging, they will have much greater difficulty recognizing personal progress, even when adequate or some growth is being made [8]. Setting short-term and moderately challenging standards is important from a regulatory viewpoint because such standards provide students with multiple opportunities to evaluate and reflect on their personal mastery of key academic skills or tasks.

Application of Academic Self-Evaluation Interventions Across Grade Levels

Over the past couple of decades, the number of school-based self-regulation intervention programs has steadily increased [10–14]. Regardless of the variations in the theoretical foundations or developmental focus, these programs place primary importance on teaching students to self-evaluate using mastery- or self-criteria. As indicated previously, the use of these types of standards or self-evaluative criteria promotes adaptive self-regulation because students are continuously prompted to focus on their own behaviors and performances rather than on external or uncontrollable factors.

Butler's Strategic Content Learning (SCL) program has been successfully applied in middle school, high school, and college settings. A basic assumption of this approach is that students are *active interpreters* of task demands, their own knowledge and skills, and their development of these skills in relation to self-generated goals and standards [11, 12]. The SCL adheres to a largely constructivist paradigm whereby tutors are primarily responsible for facilitating or helping students generate their own strategies for solving academic-related activities.

Another school-based intervention, called the Self-Regulation Empowerment Program (SREP), evolved from social-cognitive foundations and has been implemented with secondary school youth. This intervention involves teaching students to engage in the three-phase cycle of self-regulation, but places particular importance on teaching students how to adaptively reflect on personal progress [10, 15]. In one study, ninth-grade students who were failing or near failing in biology participated in approximately 22 sessions of SREP over a period of 2.5 months [15]. A key part of this program was the use of a Self-Regulation Graph as the primary vehicle to link all three cyclical phases. In this graphing procedure, students were taught to plot test grade standards or goals, to self-record their strategies, and then to plot their actual test grades. The use of this graph enabled students to use self-criteria (i.e., difference between their test grade standards and actual test grades) to evaluate the adequacy of their math test scores and to also link these self-evaluative judgments to their use of specific learning strategies.

Emphasizing self-evaluation and other self-regulation principles in school-based settings is not only appropriate in middle school, high school, and college settings but also in the primary grades [13, 14]. Graham, Harris and colleagues have conducted extensive research on the effectiveness of the Self-Regulated Strategy Development (SRSD) program for over 20 years [13]. Much of this research has focused on children in the primary grades with writing skill deficits. As part of this program, students are taught strategies to improve their writing performance but are also instructed to self-record and graph writing outcomes and then to compare these scores to a goal or set criterion. An interesting component of SRSD instruction is that students are not only taught to evaluate their behaviors and performance from a summative perspective, but also are often instructed to evaluate their engagement and execution of the writing process. This focus on self-evaluation is particularly useful in promoting adaptive regulatory behaviors because it directs students' attention on the essential processes that are needed to successfully perform an academic task. Research has shown that when novices or inexperienced learners focus on outcomes before they master the requisite strategies or skills for a task, they will often not attain a high level of performance and may actually demonstrate lower motivational levels [6].

Researchers examining the effectiveness of math-based self-regulation interventions in the primary grades have also supported the basic premise that self-evaluative standards based on self-criteria are effective in promoting adaptive regulation and achievement [14]. Fuchs and colleagues conducted a study with third-grade students to examine the contribution of self-evaluation and goal-setting to students' math problem-solving skills. In this study students were instructed to chart their daily scores on a math worksheet and then evaluate whether their scores beat prior performances. Similar to other intervention programs, the process of comparing one's own performance outcomes over time is important because it directs students' attention on their own behaviors and performance attainments, limiting the attention they devote to irrelevant or distracting factors that will not improve their performance.

In sum, the use of self-evaluative standards is a critical component of the cyclical model of self-regulation

because it helps to operationally define whether students' skills and performance outcomes are adaptive. However, the mere act of self-evaluating is not enough to promote adaptive self-regulatory thought and action. It is also important to help students select personally-meaningful or valuable evaluative standards that naturally direct their attention on the essential task components which they are expected to perform. It is when students focus on the adequacy of their own skills and regulatory strategies that they can most effectively initiate modifications and adaptations to optimize their successes.

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Self-Fulfilling Prophecy

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Synonyms

Expectancy effect; Pygmalion effect

Definition

The self-fulfilling prophecy holds that what a person believes about him/herself (or what others believe about them) will influence their performance. The self-fulfilling prophecy can act positively or negatively, depending on whether expectations are positive or negative.

Description

In educational contexts, the self-fulfilling prophecy is often used to explain differences in performance among students, such that a high-performing student might be responding to high expectations from others (e.g., teachers, parents, classmates) while a low-performing student might be responding to low expectations. [2] illustrated the self-fulfilling prophecy through an experiment in which elementary school teachers treated students differently based on their initial positive expectations of those students, and over the course of the school year, students performed in ways that were consistent with teachers' positive expectations. Subsequent research suggests that the effect can be positive or negative depending on whether teachers' expectations are positive or negative. Thus, if teachers have positive expectations for a student, they are more likely to ask that student more difficult questions, smile and establish eye contact more often, and call on them more often in class, thereby gradually leading to better performance from the student. On the other hand, if a teacher has negative expectations for a student, the teacher is likely to

behave more critically or negatively, thereby creating a less rewarding environment for the student. In both situations, the student responds to cues from the teacher which leads to performance that is consistent with the teacher's expectations.

If parents and teachers understand how positive and negative expectations can change behavior, they can use this phenomenon to influence the child to behave in ways that are consistent with expectations. Expectations may be based on numerous characteristics, such as students' gender, ethnicity, socioeconomic status, language, appearance, and test scores.

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Self-Fulfillment

►Self-Actualization

Self-Harm

►Self-Injurious Behavior

Self-Help Skills

►Adaptive Behavior

Self-Image

►Self-Concept
►Self-Esteem

Self-Inflicted Violence

►Self-Injurious Behavior

Self-Injurious Behavior

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Synonyms

Cutting; Non-suicidal self-injury (NSSI); Self-harm; Self-inflicted violence; Self-mutilation

Definition

Self-injurious behavior (SIB) includes self-inflicted harm to the body, with or without tissue damage, without the intent to die.

Description

SIBs are usually employed to reduce anxiety and tension in the mind and body and to relieve emotional pain [4]. They may also be used to punish the self and to express anger and emotions that cannot be put into words. There is some evidence that those who employ SIB do so in an attempt to feel "real" and avoid dissociation or emotional detachment [3]. Cutting and burning are the most common forms but other behaviors, ranging from hair-pulling to bone-breaking may also be classified as forms of SIB. Self-hitting and head banging are usually associated with children with autism or developmental disabilities. Piercing and tattooing are not considered SIB since they are usually associated with bodily decoration. Variables contributing to the development and reliance on SIBs are complex and may include a host of life experiences such as abuse, neglect, loss, violence and the inability to recognize, express or handle emotions [5]. Although not sex specific, there is some evidence that females in their teens are at the greatest risk of developing and relying on these behaviors [2].

At present, SIB does not have a formal diagnostic category in the DSM-IV-TR [1]. SIBs have been diagnostically linked to Borderline Personality Disorder (BPD), but this assumption has been challenged by recent prevalence studies. It has also been theorized that endorphins, the natural painkillers in the body which are released when someone self-injures, may play a role in

the addictive or repetitive nature of self-injury. Many myths surround SIBs, with the most common being that those who self-harm want to commit suicide. The behaviors often mean just the opposite and through SIB adolescents are able to relieve emotions that might lead to suicide. Serious risks may result from SIB including infection and unintentional fatal harm. Therefore, it is important that children who self-injure receive a thorough risk assessment. Cognitive-behavioral therapy (CBT), Dialectical Behavior Therapy (DBT) and psychotropic medications have all shown promise in treating these behaviors.

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Self-Judgment

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Definition

Self-judgment results from thoughts individuals have about themselves and the meanings attached to those thoughts. The thoughts, hence, produce related feelings such as anxiety, anger, and depression. Judgments (The process of forming an opinion, or reaching a conclusion based on the available material.) people make about themselves can become habituated as they are used to explain and validate unhelpful thoughts (e.g., If I am harsh on myself, other people will not be as harsh) and they might, accordingly, be intended to protect people against emotional pain, failure and rejection.

Description

Bandura (1993) introduced the notion of self-efficacy (An individual's sense of their abilities, of their capacity to deal with the particular sets of conditions that life puts before them.) [2]. He stated that individuals need other people to be with them, to listen to them and to pay attention to them. Furthermore, new challenges appear continuously as people grow older. As a result, people attempt to become more competent, engage in new behaviors and therefore make new judgments of their personal effectiveness. These judgments concerning personal effectiveness usually determine and influence how individuals might think, feel and behave. Moreover, people's judgments may affect their motivation and willingness when it comes to coping with challenging situations. On the one hand, the more able people perceive they are, the more likely they are to persist with a challenge. On the other hand, the less able people think they are, the less likely they are to cope with a difficulty.

Self-judgments compose one's self-esteem (The degree to which one values oneself.) after evaluating how one acts during times of perceived importance. One's understanding of a situation might distort healthy self-attitudes. That might happen because people commonly are much more judgmental and critical when it comes to themselves, whereas they are usually more understanding when it comes to other people, sometimes even strangers [4].

Neff (2003) discusses the notion of self-compassion (An emotionally positive self-attitude that should protect against the negative consequences of self-judgment.). It is argued that if people accept that failure is a part of human experience, they will subsequently become less self-judgmental. In addition, as one becomes less judgmental of oneself, then there is no need to compare to other people to enhance their self-esteem and they can therefore be less judgmental concerning other people [5].

Self-compassion requires self-forgiveness. It does not necessarily mean that failures must not be credited, nevertheless it means that individuals are not too harsh on themselves when they perceive a failure. A person that has self-compassion is not threatened during a failure, but challenges oneself and tries to improve. That is, a person feels safe to allow oneself to discover unhelpful thoughts, feelings and behaviors. People do not keep away or hold back distressing feelings in order to feel self-compassion. Self-compassion protects people from negative self-judgment [6, 7].

According to Neff (2003) self-compassion consists of three elements. The first one is "self-kindness," which means that one is being kind and understanding of

oneself. The second element is "common humanity," which is identifying one's experiences as parts of the larger human experience and not personal ones. Accepting that failure and inadequacy are common, in respect to other people, reduces personal blame and negative self-judgment. The third element is "mindfulness" which implies that people should not identify with unhelpful thoughts, but hold them in balanced awareness and help oneself accept situations as they occur [5].

Thus, individuals can allow themselves to become less self-judgmental, and deal with their thoughts and feelings as they are, without having their self-esteem affected. In order to accept the experience for what it is, one must be aware of their unhelpful thoughts. If individuals dwell on emotions connected to failure or inadequacy, they are more likely to judge themselves negatively. Neff (2003) supports that the less self-judgmental one is, the more balanced self-awareness one gains [5].

Distress can be reduced when individuals move away from negative thoughts and permit themselves to be aware of their thoughts without being self-judgmental. People who are trained to use mindfulness can focus their attention to the present and become aware of how their thoughts can guide them to behave in a certain way. Individuals, therefore, allow themselves to become less judgmental of themselves, because their focus is detached from the assessments they make concerning rejection and failure [1, 3].

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Self-Knowledge

►Self-Understanding

Self-Management

►Self-Regulation

Self-Monitoring

Synonyms

Self-management; Self-observation

Definition

As part of self-regulation, *self-monitoring* is the process of observing and recording one's own behavior.

Description

To achieve a goal, one must observe, evaluate, and record the process and be aware of how well one is doing. Self-monitoring is critical to determine whether one is making progress at a task. Self-monitoring has been documented to increase students' attention and the number of tasks they complete. Through self-monitoring, individuals can modify their behaviors so that inappropriate behaviors can be replaced with more appropriate ones. Typically, individuals who see that they are making progress towards their goals are more likely to sustain their efforts and can lead to a sense of accomplishment. Thus, self-monitoring can lead to increased motivation.

Researchers have offered a few suggestions for promoting self-monitoring:

1. Encourage children to create questions about the material they are learning, and then answering the questions they create
2. Demonstrate to children the process of evaluating their own performance
3. Delay feedback so that children can evaluate their own performance
4. Suggest specific criteria so that children can use them as a guide to evaluate their performance
5. Encourage independent learning over time

Relevance to Childhood Development

Young children often have difficulty monitoring their own behavior. However, as they mature cognitively and through guidance, children are more able to control and observe their actions. Children may not always be aware of how frequently or how well they do something. To help them focus on their behaviors, adults can ask them to observe and record their behaviors. Through this strategy, significant improvements in children's academic and social behaviors can be seen.

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Self-Motivation

►Self-Reinforcement

Self-Mutilation

►Self-Injurious Behavior

Self-Observation

►Self-Monitoring

Self-Percept

►Sense of Self

Self-Reflection

►Self-Evaluation in Academic Settings

Self-Regulated Learning

Definition

Self-regulated learning is the process of taking responsibility for and having awareness and control over one's own learning.

Description

Self-regulated learning describes learning that is guided by *strategic actions* (planning, self-monitoring, control, and evaluation). In particular, self-regulated learners set goals, reflect on past experiences, use strategies, monitor their progress, and are aware of their strengths and weaknesses. As a result of these actions, self-regulated learners tend to do well academically.

Examples of self-regulated learning would be scheduling ahead and organizing effectively to achieve desired goals. Periodically checking to see if progress is being made towards the goal is an example of self-monitoring, a crucial step in self-regulated learning. If progress is not being made, self-regulated learners will modify their plan accordingly to reach their goal. Control includes the ability to direct one's attention to the goal at hand and not letting outside distractions interfere in the learning process. Lastly, evaluation is simply assessing the outcome of one's efforts so that improvements can be made for future tasks.

Relevance to Childhood Development

In order help students develop self-regulation, there are a couple of strategies suggested by researchers:

1. Scaffold students' learning process and then gradually allow students to take responsibility over their own learning.
2. Emphasize the relationship between taking responsibility and academic achievement.
3. Encourage students to set their own goals and then monitor and evaluate their progress.
4. Frequently allow students to monitor their comprehension and evaluate their own performance.

Children often begin the learning process from watching others (also known as vicarious learning). When children are given a task to accomplish with a set goal from a parent or a teacher, they learn strategies to complete the goal. Over time, they are able to set their own learning goals.

In relation to the development of self-regulated learning, as children learn initial strategies to accomplish small tasks and goals, for example, completing their homework

on time, they will eventually set higher goals for themselves later on, such as completing college.

As children grow, they become increasingly competent in evaluating their own performance. Young children often seek adults' approval as a means of evaluation on how well they have done. Older children (middle school students) show an increase in self-awareness and self-evaluations become more frequent and accurate.

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Self-Regulation

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Synonyms

Academic delay of gratification; Active learning; Autonomy; Delay of gratification; Impulse control; Self-control; Self-directed learning; Self-discipline; Self-evaluation in academic settings; Self-management

Definition

Self-regulation of learning refers to the process in which learners self-initiate thoughts, behaviors, and feelings in order to pursue valuable academic goals.

Concept of Self-Regulation

During the last 3 decades, self-regulation of learning has emerged as an important area of research helpful to explain academic success. The seminal work of Albert Bandura placed self-regulation of learning as a pivotal component of any major academic endeavor. For instance, self-regulation of learning has been studied in most major areas of human development and learning such as in school, college, and medical settings, sport and industrial organizational tasks, and in direct classroom instruction as well as on online instruction.

According to Bandura [1], individuals can influence and be in dominion of their environment in order to fulfill important goals. They can produce desired consequences and manage their behavior in a purposeful manner to secure objective attainment and realization. Likewise, Zimmerman [5] observed that students could engage in self-directive learning processes by using their social and cognitive resources in order to attain academic achievement. Zimmerman [5] proposed that learners have the capacity to engage in a cyclical self-regulated learning process in which they establish standards, set academic goals, regulate their beliefs and motivation, select learning strategies to be used, monitor their academic progress, and self-evaluate their progression toward goal completion. Further, Zimmerman [5] observed that in the face of obstacles, learners need to delay gratification [2].

Skilled self-regulated learners are those who generate extraordinary motivational beliefs in order to secure goal accomplishments. They are also those who when conflicts arise between pursuing important academic goals and alternative tempting options, learn how to remain task-focused despite immediate impulses to succumb to attractive temptations. On the other hand, less-skilled self-regulated learners are unable and often unwilling to generate appropriate self-efficacy beliefs, interest, task value, and outcome expectancies that could secure their successful attainment of predetermined academic goals. These differences between these two types of learners may be explained by learners' personal characteristics such as personal goals, vicarious experiences, history of reinforcement, and modeling, as well as environmental and social conditions that influence learning.

Self-regulated learners value learning and set suitable achievement goals. They plan and manage time effectively. They hold positive beliefs about their own abilities and use appropriate cognitive strategies such as critical thinking, organization, rehearsal, and elaboration. By contrast, less regulated learners do not see the value of learning and are often unwilling or unable to set goals. They act reactively and impulsively rather than reflectively and often fail to delay gratification. They focus on rote memorization rather than on deep and effective learning strategies.

Cyclical Phases of Self-Regulation

According to Zimmerman [5], self-regulation of learning involves three cyclical phases. Specifically, during the *forethought* phase, learners, as proactive agents, engage in self-generating goals, strategic planning, intrinsic interest on tasks, and sustain self-efficacy beliefs. Then, self-regulated learners proceed to self-monitor their goals, beliefs, and use of strategies by comparing their performance with appropriate standards, by seeking help when it is necessary, and by engaging in social and environmental control. During this *performance* phase, learners initiate actions by which they enact volitional control and use strategies such self-instruction, imagery, self-monitoring, and attention control. Finally, during the *self-reflective* phase, the process of self-regulation ends with learners' self-reflection of their level of satisfaction with task completion and self-evaluation of task completion. During this phase, learners initiate self-evaluation of their performance, examine their attributions and self-reactions, and adapt their performance according to their successes or failures.

Components of Self-Regulation

An important motivational factor associated with self-regulation and academic achievement is self-efficacy. *Self-efficacy* refers to the beliefs that individuals possess about their ability to perform an expected task [1, 5]. Students with high self-efficacy may decide to continue working on an important assignment when anxiety arises or when faced with tempting alternative activities. However, students with low self-efficacy beliefs may not only succumb to a temptation, they may let disruptive thoughts interfere with performance.

Effort regulation is another self-regulatory variable associated with achievement [4]. Effort regulation refers to students' intention to put forth resources, energy, and time to secure completion of important academic tasks [4]. In an academic setting, self-regulation of academic tasks is imperative because it could determine academic achievement and performance. It is well documented that deficiencies in self-regulation of learning, cognitive capacity, and poor study habits interfere with academic performance among learners [5].

Self-regulation has three components. First, self-regulated learners engage in *self-observation* by scanning, examining, and viewing their own behavior, feelings, emotions, and reactions. Second, effective learners engage in *self-judgment* by comparing their behavior and actions to established standards such as teachers' rubrics or consulting knowledgeable peers or adults. Third, skilled learners engage in *self-reflection* by responding effectively to the outcomes of their efforts. These appropriate responses range from engaging in self-praise and self-reward for successfully completing designated tasks to changing strategies that were not helpful in the attainment of specific goals.

Relevance to Childhood Development

Self-regulation during skills acquisition could explain individual differences among learners. In the classroom, some students exhibit adaptive self-regulatory strategies and motivational patterns while engaging in academic tasks, such as exerting appropriate effort for success, enjoying the challenge, using appropriate learning strategies, setting specific goals, and displaying high self-efficacy levels [3]. In contrast, other students cease trying, lose interest in the activity, are unable to set specific goals and strategies, and have low self-efficacy [3]. Students exhibiting low skills to self-regulate their behavior rarely achieve high levels of academic success.

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Self-Regulation of Emotion

▶ Regulation of Emotion

Self-Reinforcement

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Synonyms

Reinforcement; Self-consequating; Self-motivation; Self-reward

Definition

Self-reinforcement is a process whereby individuals control their own behavior by rewarding themselves when a certain standard of performance has been attained or surpassed.

Description

Self-reinforcement is a method of self-conditioning that acts to strengthen the association between certain stimuli and certain responses [8]. In the behavioral theory of operant conditioning, the most fundamental principle is that a response followed by a reinforcer is strengthened and is therefore more likely to occur again [7]. Reinforcement, then, is the act of following a response with a reinforcer and is one of the primary tools of operant conditioning.

Socially-mediated reinforcement (or direct reinforcement) involves the delivery of reinforcement from another person [3, 7]. In his description of social cognitive theory, Bandura [3] proposed two other forms of reinforcement: vicarious reinforcement and self-reinforcement. Vicarious reinforcement occurs when an observer witnesses another person being reinforced for a behavior, which results in the observer increasing his production of that behavior [2]. Self-reinforcement, on the other hand, occurs when an individual establishes a personal standard of conduct and then rewards himself based on successful attainment of that standard [3]. An example of this would be a student who decides she will treat herself to dessert if she can complete one more chapter in her textbook.

Self-reinforcement processes have played a prominent role in behavioral theories of self-regulation (sometimes referred to as self-control or self-management; [4, 5]). Self-regulation of behavior involves three key sub-processes: self-monitoring, self-instruction, and self-reinforcement [6]. Although scholars differ somewhat in their description of the self-reinforcement sub-process, they all agree that behavior can be acquired and maintained through the self-administration of reinforcers that are contingent on the performance of certain responses [4]. For example, Bandura [1] argued that self-reinforcement represents an essential facet of self-regulation in that individuals regulate their behavior by making self-rewards contingent on self-prescribed standards of performance. In Bandura's [1] view, self-reinforcement has three defining properties. First, individuals must have full control of reinforcers such that they are freely available. Second, reinforcers are self-administered contingent upon performing requisite behaviors, which necessarily entails the self-denial of awards until the conditional behavior has been accomplished. Finally, self-reinforcement requires the adoption of performance standards that determine the specific criteria for reinforcement [1].

Social cognitive theorists have described self-reinforcement (or so-called self-consequating) as one of the many strategies used by students to self-regulate their learning and motivation [8, 10]. In an attempt to address the dynamic, adaptive nature of self-regulation, contemporary social cognitive views go beyond previous behavioral theories by considering not only behavioral factors but also cognitive and affective components [6]. For example, Zimmerman and Martinez-Pons [10] found that elementary school students reported using various self-consequating strategies, such as giving themselves concrete rewards for finishing school work in the face of other more appealing activities. Moreover, Wolters [8] described empirical evidence that in addition to concrete rewards or pleasing behavioral activities, students may also make verbal statements to themselves as a more immediate way of self-consequating their motivation and behavior. For instance, while reading a textbook, a student might tell himself, "You read another chapter, great job! You are making outstanding progress now." Ultimately, using such self-praising or self-reinforcing statements has been found to be an effective means of increasing one's effort while completing academic tasks [8].

Relevance to Childhood Development

As an important component in self-regulation, self-reinforcement has been shown to be an effective strategy for controlling behavior, motivation, and learning. Furthermore, evidence from several theoretical perspectives indicates that learners who use self-reinforcement strategies also report more adaptive motivational beliefs, such as greater self-efficacy beliefs, the use of various cognitive and metacognitive learning strategies [9], and improved study habits and academic performance [5]. In sum, self-reinforcement is positively associated with a variety of favorable academic outcomes in children. Research has also revealed that self-reinforcement strategies can be learned and therefore can be taught by parents and teachers to support the growing independence of children. What is more, the reinforcement itself may be more important than the agent of reinforcement (self or others; [6]). In fact, research has shown that self-reinforcement can be as effective in modifying student behaviors as reinforcement administered by a teacher [5].

Self-reinforcement helps children become active agents of their personal and academic endeavors. It does so by giving them the personal belief that the outcomes of their efforts depend, in large part, on them, and that they decide

what consequences should follow their efforts and actions. Developmentally, self-reinforcement is initially supervised by parents and teachers at early stages of skill acquisition [6]. However, independence and free choice of self-rewards are internalized by children as they mature and acquire a stable level of self-regulation. Moreover, as children acquire the skills of self-reinforcement, teachers and parents continue to serve as social models for appropriate self-reinforcement behaviors. Eventually, children internalize the basic patterns of the models and begin to select, on their own, appropriate reinforcement consistent with the task at hand and their cognitive and social development. Although direct reinforcement administered by parents and teachers is important, the ultimate goal is for children to acquire the ability to engage in successful self-reinforcement of their own behavior, motivation, and learning.

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Self-Reliance

►Autonomy

Self-Report Measures

►Behavior Assessment System for Children: Second Edition (BASC-2)

Self-Representation

►Self-Concept

Self-Restraint

►Inhibition

Self-Reward

►Self-Reinforcement

Self-Talk

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Synonyms

Egocentric speech; Inner speech; Internal dialogue; Internal monologue; Private speech; Verbal rehearsal and self-statements

Definition

Self-talk refers to a person's talk to oneself about oneself (e.g., [4, 29, 31, 33]). Self-talk includes all the intentional and automatic self-focused aloud or within one's own thoughts that run through an individual's mind [9]. The notion of automatic self-talk emphasizes that individuals are not always aware of doing so [35].

Description

Self-talk seems to be one of the most frequent cognitive activities in human life, in that almost every minute of our waking lives we talk to ourselves [24]. Hence, it is plausible, following the common notion in psychology that emotions and behavior can be generated through multiple cognitive processes, to assume that self-talk may provide a direct impetus for human emotion and behavior [10]. Yet on the other hand, it could be expected that the emotional states that are activated by self-talk may intensify the impact of self-talk and contribute additionally to influence behavior [23].

A growing body of empirical results has helped to expose the role of self-talk as an important strategy in reasoning [16], problem solving [8] or in planning (Morin, 1988). A burgeoning literature shows that self-talk is closely related to self-awareness [24], self-efficacy (e.g., [32]) and plays a crucial role in self-regulation [9, 21]. According to Depape et al. [8], self-talk seems to be a prerequisite of personal intelligence [12, 13] and of emotional intelligence [30] since it helps to integrate perspectives of others in one's own private speech and perspective. Segrist (1995) maintains that self-talk fosters both private self-consciousness and public self-consciousness because it facilitates acquiring information about the self. According to Morin [24], the frequency, duration and intensity of self-talk increases when conflicting perspectives within the self or between self and others occur.

It is crucial to differ between self-talk with positive (e.g., you can do it!) or negative (e.g., you are a loser) contents. Empirical results show that positive self-talk fosters creativity [3] and is associated with higher athletic performance [7, 22] whereas negative self-talk is related to poorer athletic performance (e.g., [17, 20]). These findings have stimulated interest in intervention programs fostering positive self-talk and reducing negative self-talk in athletes (e.g., [1, 34]). Reinforcement of athletes to use positive self-talk and avoid negative self-talk is perceived to be one of the most strongly advocated and frequently applied coaching strategies [15, 28].

Another line of inquiry has focused on the antecedents and consequences of self-talk in abnormal behavior and psychological disorders (e.g., [5, 14, 27, 36]). Studies have shown that negative self-talk in adults is related to onset and progression of depression [2], agoraphobia [6], drinking [26], and pathological gambling [11]. According to Kimberli et al. [19] studies with adolescents provide consistent findings with the adult literature. Hence, a cornerstone of cognitive-behavioral therapy of emotional disorders is the reduction of automatic negative self-talk and its replacement with neutral or positive self-talk (e.g., [18]).

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Self-Treatment

►Self-Care

Self-Understanding

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Synonyms

Self-Knowledge

Definition

Self-understanding is the individual's cognitive representation of the self which includes awareness of one's characteristics, traits, talents and abilities, as well as thoughts and attitudes that one has about the self.

Description

Self-understanding focuses on the cognitive processes involved in personal identity and individuation as opposed to other-oriented processes of social understanding. It emerges in early childhood and develops through late adolescence as the individual has various experiences and as cognitive processes mature. Self-understanding includes self-evaluation that is foundational to self development, including self-worth and self-esteem.

Relevance to Childhood Development

Most research on the development of self-understanding focuses on early childhood through late adolescence, ages 4–18. Self-understanding emerges in childhood and develops through late adolescence as children become increasingly aware of their own characteristics, traits, talents and abilities. These self-perceptions are based on the experiences of the self in context, such as interactions with others including parents, peers or society at large. Such experiences foster positive or negative self perceptions relative to the image reflected by the other and internalized by the self.

In the nineteenth century, William James proposed that the self consisted of the "I" or subjective and "me" or objective self [2]. The subjective self embodies unconscious processes that may not be observable. The objective self is action oriented and observable. James proposed that the subjective self may be understood through its objective component. According to James, experience is the source of knowledge about the self. G.H. Mead [3] further proposed that self perception is derived from interpersonal interaction, in that one derives a sense of "me" from the perspectives of others. Experiences internalized by the subjective self inform self-understanding, and consequently impact behavior manifested by the objective self.

On the basis of the work of James and Mead, Damon and Hart developed a self understanding model in which they conceptualize individuation or the differentiation of the self from society [1]. In Damon and Hart's model (1988), self-understanding is divided into two dimensions, the "self-as-object" or the "me," and the "self-as-subject" or the "I" self (p. 10). These dimensions are further divided into seven subcomponents with four age-related organizing principles which are hierarchical in level of complexity. The dimension of self-as-subject includes perceptions of the self as physical, active, psychological, and social. The dimension of the self-as-object includes the sense of continuity, distinctness and agency. The age-related organizing principles are categorical identification in early childhood, comparative assessments in middle-late childhood, interpersonal implications in early adolescence, and systematic beliefs and plans in late adolescence. Damon and Hart stress that while the development

of the organizing principles may be age-related, all dimensions are manifested during each age period. For example, at all ages, individuals have a sense of their physical, active social and psychological characteristics. Early self-characterizations are used in increasingly complex re-conceptualized states in later age periods. For example, an individual in early childhood might describe him or herself in terms of a physical property, like being thin. However, by late adolescence, the description should include a reflection of personal or moral standards, like associating being thin with eating moderately in consideration of world hunger.

According to researchers, the attainment of higher developmental levels of self understanding provides preferable conditions for positive psychological development. Self-understanding is not synonymous with but is foundational to self-esteem, self-concept, and self-identity.

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Self-Worth

►Self-Esteem

Selman's Stages of Friendship Development

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Definition

Selman's Stages of Friendship Development describe the social cognitive development of children as they make meaning of interpersonal interactions in the context of friendship. The friendship stages are based on Selman's social perspective coordination stages, which describe children's growing ability to differentiate and coordinate social perspectives in interpersonal interaction. The stages are age-related and hierarchical in complexity.

Description

Selman's levels of friendship development describe children's increasing capacity for mutual collaboration through the processes of intimacy and autonomy that occur in the context of friendship. Friendship levels are closely related to levels of social perspective coordination which describe the child's increasing capacity to coordinate perspectives. The friendship levels may be understood as an expansion on social perspective coordination as applied to the context of friendship. The levels coordinate strongly with developmental stages so that each level is associated with an age range. The behaviors are seen typically to emerge at the lower age limit and to be crystallized by the upper age limit. The five levels begin at 0 and end at 4.

Level 0: Ages 3–6 Egocentric Understanding of Friendship

At this level, actions are often equated with physical characteristics or capabilities rather than psychological intentions. This level is associated with the least differentiated level of social perspective coordination, Level 0.

Level 1: Ages 5–9 Unilateral Understanding of Friendship

Children realize that feelings and intentions may keep together or divide friendships. However, they tend to understand these feelings and intentions from only one individual's perspective as opposed to reciprocal perspectives within a relationship. For example, Selman and Schultz [1] state that children at this level might understand not being invited to a party in terms of being denied something they want to do but not necessarily in terms of being rejected by another.

At this level of social perspective coordination, children can differentiate between physical actions and psychological characteristics, such as intentions and feelings. However, this understanding is not sophisticated enough to detect differences between outward behaviors or appearances and inward feelings. Selman and Schultz [1] state that a child at this level still interprets subjective states of others in terms of surface actions (e.g., he must be happy because he is smiling).

Level 2: Ages 7–12 Reciprocal Understanding of Friendship

At this level, children use reciprocal social perspective coordination, and conceptualize trust, jealousy, and rejection in friendship in terms of reciprocal expectations for behavior, feelings and intentions. In level 2 social perspective coordination, children can view their own actions

from a second person perspective, and understand that one person may have multiple feelings simultaneously. They also understand that inward feelings may diverge from outward experiences (e.g., a person's smile does not necessarily mean that they are happy). They also understand that one can use outward appearance to mask inward feelings and prevent others from knowing how they really feel.

Level 3: Ages 10–15 (May Start as Early as 8) Mutual Understanding of Friendship

At this level, children understand mutual commitment within a relationship, rather than simply understanding each other's perspectives. Friendship is viewed as a bond of commitment that developed over time and through mutually shared experiences. Such a bond is not easily broken. Conceptualizations of jealousy, trust, and rejection are included in the bond of commitment between friends. This level is characterized by intense exclusivity in friendships as exemplified by some strong attachments in adolescent friendships. At this level in social perspective coordination, the child can step outside the perspectives of self and other to take a third person perspective to view friendship as an ongoing system characterized by reciprocity and mutually shared experiences.

Level 4: Ages Adolescence Through Adulthood Interdependent Understanding of Friendship

At this level, individuals move beyond the exclusivity of the previous level to understand that friends may be mutually close but also autonomous and independent.

At this level of social perspective coordination, individuals also achieve a conception of the unconscious, an understanding that individuals may be affected by thoughts and feelings that are not necessarily self-reflectively or objectively perceived. There is also an awareness that the meanings of friendship may be deeply entrenched in symbolic communication and understandings developed on the basis of shared history. Therefore, in interpersonal interaction, long standing friends may be able to communicate with a simple look or other symbolic gesture on the basis of their knowledge of one another.

Relevance to Childhood Development

Robert Selman has an ongoing interest in understanding and facilitating growth in children's development of interpersonal understanding or the capacity to coordinate perspectives. According to Selman, this developing ability to differentiate and coordinate the social perspectives of self and other cognitively and emotionally is the essence of social cognitive development. Selman views progression in social coordination to be developmentally-related differentiations and integrations of meaning-making regarding children's personal experiences and social interactions. Selman has defined stages of interpersonal understanding in four domains, including friendship, peer groups, parent-child relations and individuals based on his social perspective coordination model. The levels of social perspective coordination are used to describe how children come to achieve their interpersonal understanding in the four domains.

Selman's friendship stages specifically provide a tool for the in-depth understanding and explanation of social and emotional development in the context of friendship. This model has been used in pair-therapy to help children share experiences and negotiate conflicts in dyadic relationships. It has also provided the foundation for the developmental of the interpersonal negotiation strategies model and for other intervention strategies.

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Semantics

Definition

The study of meaning in language

Description

Semantics is specifically concerned with how words and sentences convey meaning. Within semantics there are two forms of meaning, denotation and connotation. Denotation is the dictionary definition of a word, and connotation is a word's emotional overtones, assumptions, and other ambiguous meanings. The combination of denotation and connotation create word meanings in different contexts. Semantics encompasses word and sentence meaning, but also extends to the understanding of discourse. Discourse is the highest level of semantics, including conversation, stories, paragraphs, chapters, and books. Also, gestures, body language, and personal space all have semantic meaning.

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Semi-Objective Scales

►Rating Scales

Sense of Oneself

►Self-Concept

Sense of Self

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Synonyms

Identity; Self-Concept; Self-percept

Definition

The lived experience of being a self, and with the end of infancy and the development of a sense of a subjective self, identifying oneself as who one is.

Description

The sense of self has only recently been conceptualized in a systematic and comprehensive way by Daniel Stern [5]. Prior to Stern's work the self was discussed in the disciplines of philosophy and psychology, but without rooting it in any empirical science. Hence its usefulness was limited for psychology and for development even though it was taken for granted in many instances. For example, identity development was mapped out by Erikson [3] and identity disturbances were thought to occur in dissociative disorders [1]. However, without a systematic conceptualization or one based on empirical evidence, these phenomena only raised more questions about the role of the self or identity, rather than explaining them.

Stern delineated four major senses of the self: the sense of an emergent self, the sense of a core self (self vs. other), the sense of a core self (self with other), and the sense of a subjective self. His use of the term "sense" is deliberate and proposes an immediately lived and experienced, or sensed, self. This understanding of the self is new for psychology and due to its basis in empirical findings from infancy research, the sense of self, the subjectively experienced self, can now be studied in a more systematic and rigorous fashion. The sense of self is the subjective perspective of the human person which changes qualitatively from infancy onward.

Relevance to Childhood Development

The relevance of the sense of self as a concept to childhood development is significant in its scope and its provision of a framework for exploring subjectivity. For those disciplines studying childhood development, the concept provides a useful foundation especially for addressing the subjectivity of the self. Childhood development has been dominated by the study of measurable capacities, skills and traits which are known to undergo significant change and organization in the childhood years. Any interest in subjectivity or the experience of being a self has been relegated to philosophers and poets or perhaps clinicians and education specialists. With the grounding of a concept in empirical evidence and developmental and neurodevelopmental science, the understanding of the self and its increasing differentiation and emerging organization as it develops has increased in important ways.

The orientation to development studies referred to as life span developmental psychology [2] benefits from a rigorous conceptualization of the sense of self since it addresses developmental phenomena occurring across the life span. It can use the sense of self concept as an anchor for the many complex psychological processes being studied including resilience, wisdom, memory and the effects of trauma on identity.

Siegel [4] addresses the developing mind by integrating neuroscience and attachment theory to show the self as the integration of evolving processes of meaning making and interpersonal relationships, and that there is no self without the other. Siegel's work has brought the idea of the self to its most useful place since it is now being harnessed to the exploration of the brain/mind and the very nature of what it is to be a self.

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Sensorimotor Dysfunction

►Developmental Coordination Disorder

Sensory Aphasia

►Childhood Aphasia

Sensory Curiosity

►Curiosity

Sensory Deprivation

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Synonyms

Restricted environmental stimulation

Definition

Sensory deprivation involves partial or complete loss of sensory stimulation, usually under involuntary circumstances. It has been associated with a number of psychological adversities but also with neural plasticity and therapeutic potential.

Description

Gathering information from the social and physical environment involves perceptual mechanisms, which in turn draw upon information supplied by the senses. Senses are cell types that have evolved to respond to different types of environmental stimuli, including vision, hearing, touch (somatic sensation), taste (gestation), smell (olfaction), balance (equilibrioception), proprioception (kinesthetic sense), and temperature (thermoception). These may be located in specialist receptor organs (e.g., nose, eyes) or located at nerve endings on the skin. The environmental data collected by these receptors are carried to the brain and cortex, where they are mediated by cognitive processes.

Sensory deprivation involves partial or complete loss of sensory stimulation, usually under involuntary circumstances. The term refers to a plurality of experiences, rather than a unitary experience. It can occur in one or more of these sensory modalities, and can sometimes be attributable to sensory overload to another modality, or sensory distortion, which prevents the individual from drawing information from the local environment. It has been associated with a number of psychological adversities (see below) but also with neural plasticity and therapeutic potential.

Types/Sources of Sensory Deprivation

One motivation for exploring the effects of sensory deprivation is to gain a better understanding of the development of human perception, and the relative contribution of nature and environment upon these processes. The main foci of developmental inquiry into the effects of sensory deprivation have focused on two main areas, firstly, the effects upon typically-developing children, and secondly those with markedly atypical development where sensory impairment or difference is a mediating factor.

Research into the first type focuses upon children whose development is unfolding in sub-optimal or inadequately stimulating environments. These sensorily-deprived environments may be a consequence of active (violent) or passive abuse (e.g., neglect), over-anxious parenting, or chronic parental illness or disabilities.

The second type of sensory deprivation is associated with a range of congenital and acquired sensory abnormalities (e.g., visual impairment or blindness). It may be acquired, possibly associated with a number of identifiable neural insults, or reflect a wide range of neuropsychological disorders. The nature of the deprivation and the developmental consequences may vary according to many factors, including the precise source of deprivation.

In recent times, interest in this area has been somewhat influenced by its perceived relevance to other debates within psychology, both in the developmental field and elsewhere. Some common sources of sensory impairment are outlined in more detail below.

Early Research

In the 1950s and 60s there was a flowering of research into artificially-induced sensory and perceptual deprivation involving adult participants, the most famous under the direction of Hebb at McGill University (for review see [31]). In adults, sensory deprivation was associated with a number of cognitive and perceptual distortions, and more latterly, which came to be associated with panic, mental confusion, time distortion, hallucinations and depression.

Ethical Implications of Researching Sensory Deprivation

One of the difficulties in understanding the role of sensory deprivation in child development relates to the potentially

detrimental effect of experimentally inducing such experiences. Some commentators consider that sensory deprivation must be experienced for a longer duration than 1 day, to avoid confounding by other effects. Clearly, a need for prolonged exposure could lead to unquantifiable harm to juvenile participants, as would withholding intervention in a non-treatment control group drawn from a population with sensory disabilities.

In the case of studies involving adults, there has been concern over the application of pure research in sensory deprivation for military purposes (e.g., [29]). Contemporary anti-terrorism practices based on sensory deprivation work have attracted considerable political controversy. For example, McCoy [13] proposes that the CIA used psychological work on sensory deprivation as the cornerstone of practices designed to precipitate psychological breakdown. This has led to the APA's [1] position statement on psychology's role in such research.

Such concerns have had severe implications for the conduct of research in this area. This has resulted in some diversification in the pursuit of evidence. Subsequent directions have included prospective research with non-human participants, and retrospective research with victims of repressive political systems or highly impoverished environments. Subsequent basic research has largely been undertaken with animals rather than humans.

Animal Studies

Animal studies allow the exploration of both the physical and behavioral consequences of early deprivation, whilst human studies tend to only provide good access to the latter. Perhaps unsurprisingly then, most developmental research has been conducted using animals, mainly, but not exclusively, mammalian species including laboratory-reared rats, cats and primates, although there are now increasing concerns about animal welfare.

Typically, such research involves comparisons between animals reared in a range of deprived conditions, and enriched conditions. This research has provided some evidence for correlations between deprivation, neural development, and behavior.

The work of Harlow and colleagues suggests that the effects of early sensory deprivation may be long-term and have severe consequences for normal social functioning. They conducted a well-known but controversial series of experiments on rhesus monkeys between 1957 and 1963 examining maternal deprivation as a source of sensory deprivation. Some monkeys were removed form their mothers and placed in various conditions involving a terry cloth "mother" representation with or without a milk dispenser, and a wire version. At times of stress, infant monkeys clung to the terry cloth models, but not the wire version, including the latter when designed to dispense milk. Harlow concluded that lack of contact comfort was psychologically stressful to infant monkeys. However it is unclear if some of the behavioral sequelae related to loss of opportunities to develop social interactional skills, or sensory deprivation per se.

There is evidence that early deprivation may have extended consequences for neural development. Rat studies have highlighted physiological correlates of early sensory deprivation, including decreases in brain volume, e.g., dendritic volume and glial density (Greenough, 1976).

In addition to psychophysiological studies, the behavioral sequelae of such impoverished environments have been explored in a number of studies. Sackett [21] observed higher levels of motor activity in dark reared rats that persisted over time, however resistance to novelty proved somewhat more amenable to change. Dodwell, Tinney, and Emerson [5] found that kittens reared in dark conditions displayed more visual stimulus-seeking behavior than controls.

Although non-human primates have many similarities in neural architecture, it remains unclear how far these findings may be generalized onto developmentally immature humans.

Developmental Studies and Sensory Deprivation

Animal studies suggest that optimal maturation of the infant's brain and the subsequent behavior of the organism is somewhat contingent on the sensory information available to it. One of the key ideas of mid twentieth century Developmental Psychology is the notion that human development is predicated on interaction with people and the physical environment to some degree (c.f. Piaget, Bowlby). In common with many areas of psychology, evidence from sensory deprivation research has been mobilized in debates between supporters of nativist (e.g., Chomsky) and empiricist (e.g., [7]) theories of brain development.

Whilst there is direct empirical evidence that sensory stimulation may enhance infant development (e.g., [22]) ethical constraints mean that there is rather less research about how sensory deprivation may negatively influence development. The available evidence is typically drawn from studies of the effects of early sensory deprivation due to sensory disability, or where development is unfolding in less than optimal circumstances during sensitive periods, or over a sustained time span. Some of the latter is principally correlational, and secondary to

the central concerns which the research was designed to address.

Studies of sensory deprivation, and variables around the onset and duration of sensory deprivation, have provided useful evidence of "sensitive" or "critical periods" in development, both in terms of the temporal correlates of consequential damage, and recovery for the adverse circumstances.

The Effects of Neglect

Important evidence has been provided by studies of children recovered from extreme deprivation and neglect, where human (in)action provides sub-optimal sensory stimulation over a period of time. This may involve familial neglect, or institutional neglect experienced by those developing in public care systems. However more can often be said about the social context in which neglecting abuse occurs, and adolescent social outcomes, than the precise nature of the sensory deprivation which is alleged to have taken place. It can be difficult to isolate the effects of other adverse life events such as poor nutrition. The potential for recovery from these adverse sensory events has proved to be a major preoccupation in this research field.

The Harlow studies (see above) linked deprivation of the mother's stimulation to poor social outcomes. Bowlby's study of children hospitalized for tuberculosis who had limited contact with their parents showed lower IQ scores in this group. However, it is difficult to partial out the effects of their illness, or the quality of care received, possible sensory deprivation, etc.

One of the best known cases where sensory deprivation had a potentially clear role is that of "Genie." She was raised in Los Angeles and experienced severe sensory and social isolation from the age of 20 months to 13 years 7 months at the hands of an authoritarian father and a visually impaired mother [4]. Although Genie did acquire some vocabulary and assembled word strings, she appeared unable to acquire standard syntax. This provides some support for Lennenberg's hypothesis that there may be critical (or at least vulnerable) periods for aspects of language learning. It was also noted that Genie displayed enhanced development in gestalt perceptual skills, considered to be a right hemisphere compensation for sensory impairment to left-hemisphere function (language experience). However, these inferences may have been confounded. There has been an ongoing controversy as to the extent to which Genie may have been globally mentally retarded.

Further evidence has come from studies of children who had been previously cared for in severely depriving state institutions in Romania. Some of these were adopted outside the country during early childhood, and future care usually took place in relatively enhanced settings. In a study conducted when adoptees were 6 years old, Rutter, O'Connor and the English and Romanian Adoptees Study Team [20] found that children kept in state institutions for up to 42 months showed a comparable rate of progress to control English children adopted before 6 months of age. A substantial minority had much poorer adjustment. Whilst it is not possible to partial out the precise contribution of sensory deprivation in these outcomes, it provides further evidence of the reversibility of effects of early deprivation.

Much research has been concerned with the behavioral consequences of early neglect or abuse later in the developmental trajectory. Early neglect or abuse has been associated with higher aggression in adolescents, for example, Bowlby's (1946) group comparisons of juvenile delinquents (thieves and non thieves) found a higher percentage of the former group had been separated from their mothers for 6 months or more within the first 5 years of life, and inferred that that maternal deprivation led to juvenile delinquency. There is some evidence that behaviors arising from early experience may be linked to vulnerability to new adversities (see [3]), perhaps by putting themselves in circumstances where sensory deprivation may be re-established.

Nevertheless, the degree to which early experience of sensory deprivation is represented in enduring change in the child's development, and the persistence of maladaptive behavior awaits further clarification. Outcomes may be open to influence by a range of variables, including time.

Neural Plasticity

Neural plasticity refers to structural cortical changes which create or modify functions in the brain in response to environmental input. It can offer the possibility of compensating for localized impairment of isolated areas of sensory processing. This is often referred to as the "Sensory Compensation Hypothesis" (e.g., [19]). There have been several empirical studies that have challenged the generalizability of this assumption (e.g., [11]).

Noting that hearing impaired individuals often develop higher visual acuity, and persons with visual impairments often display superior auditory and tactile performance, neurobiologists have been keen to explore the implications of localized sensory deprivation in their studies of brain plasticity. There has also been increasing interest in the extent to which early or later brain plasticity may influence the course of development, both within hypothesized "sensitive periods" and beyond them.

However, the benefits may be balanced by other loss of function, thus Stevens and Neville [23] characterize neuroplasticity as a "double-edged sword."

Sensory Experience in Clinical Populations with a Sensory Impairment

Sensory impairment may have a minor or profound influence on child development trajectories, which is somewhat dependent on the nature and severity of the impairment. The degree of impairment may also be associated with the context in which development is taking place, e.g., the availability of assistive technologies and early intervention. It is often difficult to precisely describe its unique influence, as a number of other variables may be in play (e.g., intelligence).

In these populations, normal stages of sensory processing from the sense organ (e.g., the retina) are interrupted at some point, either due to some congenital disorder or acquired. Sometimes this will involve multiple senses. Thus children with sensory impairments do not have the same potential for sensory experience as non-impaired individuals, regardless of any limitations upon the opportunities available to the latter group. At this stage, it becomes more useful to think in terms of restricted access to sensory experience rather than sensory deprivation.

Sound Deprivation via Hearing Loss

Deaf or hard of hearing children experience some degradation of the stimulus to the cochlear and/or some impairment in the function of the cortical regions associated with processing. The sensory deprivation involved in hearing loss may have pervasive implications for child development. Hearing losses fall into two broad categories, although there may be a mixed expression in any individual. These are firstly conductive hearing loss (where there is some impediment to the passage of sound), and secondly, sensorineural loss, which involves damage to the nerves or hair cells of the middle or inner ear. This may result in sound distortion rather than sound dampening.

Pre-lingual and early acquired deafness can have pervasive effects upon child development. Precise developmental trajectories are influenced by a number of factors, including the use of sound perception support technologies like cochlear implants and the age of implantation (for discussion see [6]).

Cognitive, linguistic and socio-communicative developmental delays can be somewhat offset by early introduction to a sign language. Children born into signing families may have no developmental delay in acquiring language. The constraints on social experience may delay the onset of Theory of Mind capacity in this population [17].

There is much evidence that hearing loss is accompanied by cortical reorganization. This may involve compensatory development and augmentation of other senses. However, such benefits may be offset by degradation or non-development of mechanisms within the affected sense. This is most relevant when the possibility exists for corrective intervention such as the use of amplification devices or cochlear implants. Earlier implantation is often associated with better outcomes, especially where there are no comorbid impairments such as general learning difficulties.

Light Exclusion and Visual Impairment

For some species, the consequences of light exclusion or diffusion for short periods are apparently negated after a period of normal light exposure. In humans, there may be temporary refocus of other sensory media which can be rebalanced. For example, Lewald [9] reported that non-impaired participants' orientation to acoustic targets were increased following 90 min of light exclusion, an effect negated after 3 h of re-exposure to normal lighting conditions.

An important source of evidence for the effects of light deprivation on human development is drawn from studies of children with visual impairments, especially those with corrected vision. The term "visual impairment" is a category descriptor for a wide range of neurobiological and physiological impairments that result in less that optimal vision. Some may experience low visual acuity, and others may be restricted to light perception only, about one in ten may have no vision at all. These impairments may be congenital, or later acquired. There may also be comorbid symptoms which further complicate the course of development.

Like deaf children, this group may be delayed in socio-cognitive development [18]. This may be related to light deprivation, in restricting access to the visual information used to manage social encounters with others such as eye gaze and gestures. There is some evidence that this may lead to pragmatic impairments in this population, although it has been unclear whether this reflects some confounding with comorbid disorders. However, James and Stojanovik (2006) observed such impairments in a small cohort of visually impaired children without co-present pathologies. Blind children are likely to require additional educational support to learn tasks commonly taught using imitation, or visual inspection, including self care routines.

Many researchers have focused upon the implication of visual deprivation for the notion of critical or sensitive periods (see above). Lewis and Maurer's [10] study of children with dense congenital cataracts has provided

evidence of multiple sensitive periods where adversity can influence visual development. Their findings suggest domain specificity, with longer critical periods being reported in terms of acuity and peripheral vision, but shorter periods of sensitivity in relation to global motion perception.

Sensory Deprivation and the Etiology of Autism Spectrum Disorders

Distinctive behaviors and socio-cognitive deficits observed in congenitally blind and deaf children can also feature in the presentation of autism spectrum disorders (ASDs). For example, the terms "blindisms," "deafisms," and "autisms" may be mobilized to refer to substantially similar stereotypical behaviors. These overlaps, together with high functioning persons' with autism own reports of sensory problems, have led some commentators to hypothesize that sensory impairment may have some etiological role in the disorder.

Treatments involving sensory deprivation or sensory substitution are sometimes used to manage the behavior of children with severe learning impairments. Zentall and Zentall [30] proposed that there may be an optimal level of sensory stimulation for "disordered" children, e.g., those with hyperactive behaviors and autism. They suggest that their "optimal stimulation model" supported by sensory interventions may offer opportunities for individuals to attain homeostasis.

A treatment approach that attempts to create an optimal sensory environment is that of the "Snoezelen" or other "sensory" room, where light levels and ambient noise may be reduced, and substituted with managed single or multiple sensory stimuli in an effort to reduce challenging behaviors or stimulate motivationally challenged or severely mentally impaired individuals. However effective these may be in addressing target behaviors, it is unclear if they provide evidence for sensory problems in these populations.

It is unclear whether the processing of available sensory information in ASD may be linked to cognitive impairment, and to what extent it may be elective, e.g., eye and ear covering to screen out unwanted stimuli. Autism may involve multiple sources of sensory deprivation, which would be quite challenging to unravel. However, in producing symptoms that have parallels with those observed in neglected or individuals with sensory impairments some possible crossover in intervention practices may be identified.

Future Directions

The early focus in the study of sensory deprivation moved from direct effects to behavioral and functional recovery (e.g., [27]). Much relied on observed correlations between behaviors, known sources of sensory impairments or life events. However, the relationships between these variables are generally not linear, and the consequences of sensory deprivation are more complex and nuanced than earlier work may have suggested. Moreover, the brain plasticity which offers scope for compensatory development may also be responsible for loss of functional capacity where very early intervention is not possible. The development of sophisticated neuro-imaging techniques will facilitate more sophisticated modeling of neural processes, which in turn should provide greater clarity about the operation of these variables.

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Sensory Integrative Dysfunction

►Developmental Coordination Disorder

Sensory Motor Stage

►Piaget's Sensorimotor Period

Sensory Register

►Iconic Memory

Sentence Structure

►Syntax

Separation

►Ainsworth's Procedure
►Divorce-Stress-Adjustment Perspective

Separation Anxiety

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Synonyms

Separation, attachment and

Definition

Behavioral and emotional manifestations of fear, worry, or upset associated with separation from home or from individuals to whom the child is attached. When symptoms are excessive or developmentally inappropriate, separation anxiety may be considered clinically significant.

Description

Separation anxiety is common throughout preschool age in children, typically emerging around 8–9 months of age. Intensity of reactions lessen over time, with developmentally normal separation anxiety typically disappearing by age 3 years, when children become capable of forming a mental image of the absent caregiver or attachment figure [2]. Length and intensity of separation anxiety reactions are often dependent on the child's temperament and age, as well as the parent's reaction to the child. Novel and unexpected separations can also cause a more intense or prolonged reaction.

Separation anxiety that is prolonged and developmentally excessive and inappropriate may lead to a diagnosis of *Separation Anxiety Disorder* [1]. These more serious reactions are often accompanied by physical complaints, nightmares, sleep difficulties, and refusal to leave home or the proximity of attachment figures for normal or routine activities.

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Separation, Attachment and

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Synonyms

Separation anxiety

Definition

Separation is the physical removal of children from attachment figures, usually the caregiver to whom they are attached. *Separation and Loss* is the title of John Bowlby's second volume in his trilogy of Attachment Theory [2]. Within this book, he addresses naturalistic responses in humans to separation from an attachment figure. Normative reactions include anxiety and anger, and in more extreme forms, depression. In child development, what constitutes separation and the subsequent behavioral response changes with age, and is reflective of the relationship itself. Separation from attachment figures has also been studied across the human life-span and in non-human primates.

Description

Separation of an infant from an attachment figure typically results in a distress reaction such as crying. Around age 1, this almost always occurs, unless the attachment relationship is an avoidant one [1]. As children get older, they are capable of emotional regulation and representational thinking, and thus more tolerant of separations from attachment figures, particularly when they are predictable or explained. For example, children going to school and parents working outside the home are predictable separations that should not result in crying and distress in children once they have begun school, and if they do, there may be cause for concern that the child has separation anxiety.

In Bowlby's Attachment Theory, he described normative responses to separation from attachment figures that he observed in children that were in residential care, and thus separated from their mothers. The three phases are protest, despair, and detachment. The protest phase begins immediately upon separation, and lasts up to weeks on end. It is indicated by outward signs of distress such as crying, tantrum behavior, and searching for the return of the parent. Protest decreases during the despair phase, and children become withdrawn and helpless. The detachment phase implies loss of the original attachment, and children are emotionally distant from an attachment figure even if they returned. While these are normative responses to prolonged separation, there are also individual differences that define an attachment relationship. In Ainsworth's Strange Situation used to classify an infant–caregiver relationship, separations from and reunions with a parent are actually part of the task. In an insecure–avoidant relationship, for example, protest is minimal, as are smiling and greeting after reunion. In fact, there seems to be indiscriminate response to the parent and a stranger, and the child may even avoid the parent after the separation. In insecure-resistant infants, there is greater protest (e.g., crying, tantrums, anger), more clinging behaviour, and this distress is slow to resolve after reunion. Secure infants may protest the departure of a parent, but this distress is resolved after the separation ends. Overt behavior is also not the only way in which separation is studied. It is subject to some of the same physiological markers as other stressors, such as an elevated noradrenergic or cortisol response [3, 6].

Separation and attachment have been examined in common circumstances for children, such as family disruption in marital separation and divorce, serious illness requiring hospitalization, parents being away for extended work periods [5], children removed from parent's homes due to maltreatment and/or neglect, and children separated from parents during disasters and war-time events [7]. There is evidence that either marital separation of at least 6 months or divorce has a negative impact on teenager's attachments to parents, particularly when the separation occurs earlier rather than later in a child's life [10]. A history of child maltreatment is associated with later disorganized attachment, and this is likely due to a background of frightening parent–child experiences [8]. In this case, children may need to be taken into care and separated from the parent, although this is seen as an instance where parent–child separation is necessary and hopefully helpful for the child in the long run. These are all negative life events that include family disruption and separation from parents, and such events are associated with a decline in attachment security from infancy to adulthood in a predictable fashion [4, 9] and more normative parent–child separations such as those that come

from a parent working outside the home were initially hypothesized to result in attachment security problems for children based on Bowlby's original descriptions of separation. However, a large scale analysis of this kind of separation has not supported this hypothesis. So separation in and of itself does not have negative consequences for children, but may when combined with other negative family circumstances.

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Serax®

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Synonyms

Oxazepam

Definition

A prescription medication FDA approved for the treatment of anxiety and management of alcohol withdrawal.

Description

This medication is a benzodiazepine, a central nervous system depressant, available in tablets and capsules.

The recommended starting dose for this medication is 10 or 30 mg taken 3 times a day to 4 times a day. Maximum suggested dose is 120 mg daily. This medication should only be taken as directed by a doctor and is usually taken only for a short period of time. This medication may become habit forming.

Some side effects are listed here: drowsiness, dizziness, memory impairment, headache, amnesia, rash, tremor, and blurred vision. Certain side effects may go away during treatment.

Relevance to Childhood Development

Serax® is not FDA approved for use in children under 12 years of age.

This medication may cause paradoxical effects in children and adolescents, meaning they may become hyperactive or show aggressive behavior. Children may be more sensitive to the side effects of Serax®.

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Serious Emotional Disturbance (SED)

►Behavior Disorders

Seroquel

►Quetiapine

Seroquel XR

►Quetiapine

Serotonin

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Synonyms
Neurotransmitters

Definition
A type of neurotransmitter which is involved in communication between neurons in the central nervous system.

Description
Serotonin affects areas of the brain typically involved in depression, eating, sleeping, memory, sexual behavior, and aggression. Serotonin, like other neurotransmitters, aids in communication between neurons by passing from the axon of one neuron through the synapse, or gap between neurons, to the dendrites of another neuron. Serotonin is received by 5-hydoxytryptamine (5-HT) receptors in nerve cells and most often acts as an excitatory neurotransmitter. Serotonin can be toxic in high doses which has been termed serotonin syndrome. Serotonin syndrome typically results from taking two or more drugs designed to increase serotonin and produces symptoms such as hallucinations, vomiting, diarrhea, increased body temperature and heart rate, shivering, and confusion among others. If treatment for serotonin syndrome is not sought it can be lethal [1].

Psychopathology has been related to problems in serotonergic systems of the brain such as Major Depressive Disorder (MDD) and Obsessive Compulsive Disorder (OCD) wherein individuals with such disorders tend to have low levels of serotonin. Both disorders have been found to be effectively treated using selective serotonin reuptake inhibitors (SSRIs) [2, 3] which temporarily block the presynaptic neuron from reabsorbing the serotonin, thus allowing for more serotonin to reach the receptor sites on the postsynaptic neuron. Several types of SSRIs are available such as citalopram (Celexa), escitalopram oxalate (Lexapro), paroxetine (Paxil), fluoxetine (Prozac), and sertraline (Zoloft). Research has shown that SSRIs are effective for treating depression, OCD, and bulimia nervosa.

Relevance to Childhood Development
Since serotonin has been linked to the aforementioned disorders, examination of these disorders in childhood is relevant. Treatment of children with psychological disorders such as MDD and OCD with SSRIs is fairly commonplace although warnings have been put in place due to increased risk of suicide among children, adolescents, and young adults. A cost-benefit analysis prior to the use of SSRIs in treatment and careful monitoring of individuals in this age range is recommended.

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Sertraline

►Zoloft®

Servicing Oneself

►Masturbation

Serzone®

►Nefazodone

Sesame Street

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Definition
Sesame Street is an educational children's television program aimed at children 3–5 years of age that is most

well-known for Muppet characters such as Big Bird, Bert, Ernie, Oscar the Grouch and others.

Description

In March 1968, Children's Television Workshop (CTW) was established through which Sesame Street was broadcast. Initially, CTW was given $8 million to fund a 2 year project with the primary aim being to enhance school readiness in preschoolers, particularly children ages 3–5 years, with minority and low-income backgrounds. Funding for the program came from the US Department of Health, Education, and Welfare, Corporation for Public Broadcasting and private foundations such as the Carnegie Corporation, the Ford Foundation and others. The principal creators of Sesame Street in 1968 were Joan Ganz Cooney, Director of CTW, Lloyd Morrisett, vice president of the Carnegie Corporation and Gerald Lesser, a professor at Harvard University. Other creators included experts in child development as well as experts from the field of commercial television. One pivotal move by the creators was using Jim Henson's Muppets as main characters on the program. Along with songs resembling commercial jingles, Sesame Street was entertaining and educational, a first in the domain of "Edu-tainment." The five broad areas on which creators of Sesame Street intended to focus included social, moral and affective development; language and reading; mathematical and numerical skills; reasoning and problem solving; and perception.

In addition to summative research, which was designed to evaluate the effectiveness of Sesame Street on children it was reaching, another major component of Sesame Street was the emphasis on formative research. Research findings have concluded that for children who were 3–3.5 years old, watching Sesame Street was a strong predictor of vocabulary development. These findings were not as significant for older children. Importantly, children's vocabulary size increased when they watched Sesame Street alone, indicating that it was not necessary for parents to view and discuss the show with their child. In addition, viewing Sesame Street has been linked to: future positive performance in reading, math and school readiness; better ability at recognizing letters and reading books at an earlier age; and better grades in science, English and math 10–15 years later.

Relevance to Childhood Development

Because of the ubiquitous nature of television, it has become an almost steady companion in children's most critical years of development. Therefore, programs such as Sesame Street, which promote positive cognitive, social and emotional development, have become crucial in meeting the needs of young children.

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Setting (Great Britain)

►Ability Grouping

Severe Emotional and Behavioral Problem

►Conduct Disorder

Severe Mental Retardation

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Synonyms

Cognitive impairment; Developmental delay; Developmental disabilities; Intellectual disability; Mental deficiency

Definition

Severe Mental Retardation is defined by the presence of significantly subaverage general intellectual functioning as well as significant limitations in adaptive functioning (adaptive behavior) present prior to the age of 18 years. Individuals with a diagnosis of severe mental retardation generally obtain IQ scores within the range of 20–25 to 35–40 [1, 3, 4].

Description

Severe mental retardation (MR) is described by the *Diagnostic and Statistical Manual of Mental Disorders*-Fourth

Edition-Text Revision [2] as impairment comparable to a range of IQ scores that fall within the range of 20–25 to 35–40 [2]. Individuals with severe MR are limited in the areas of intellectual functioning and adaptive skills, typically exhibiting limited or absent levels of communicative speech. They are also likely to experience comparable limitation in the areas of self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work skills [2]. Symptoms are likely to manifest in both the individual's ability to master a range of cognitive skills and their ability to respond to environmental cues [5].

Individuals who fall within this diagnostic category comprise approximately 3–4% [2] of all individuals with mental retardation. Unique to this level of impairment is the strong likelihood of an identified etiology of genetic or neurological syndrome resulting in mental retardation, as well as a variety of other physical and psychological symptoms present from birth or early childhood. Concurrently, the presence of additional physical impairments such as cerebral palsy, epilepsy, and vision or hearing difficulties have been found to increase with level of intellectual impairment (intellectual disability). Co-morbid medical complications are also common.

Training typically focuses on areas of deficit such as self-care or social skills during school age and beyond. Individuals with severe MR are often able to function within a "workshop" or similar type of vocational environment. They generally adapt well to life within their family or group home environment, although some level of support and assistance will typically be necessary throughout their lives [2].

Relevance to Childhood Development

A diagnosis of severe mental retardation has weighty implications for both the child and his caretakers throughout development. Accessing services the child is entitled to often requires a working knowledge of government and school systems, including the Individuals with Disabilities Education Act (IDEA). This program provides adaptive education to all children within the least restrictive environment possible. Adaptations may also include school-provided speech, physical, or occupational therapies as appropriate. Within the family or caretaking environment, education of the parent or primary caretaker is essential regarding available resources and developmental expectations. Because the development of children with Severe Mental Retardation is significantly limited in most cases, families of children with this diagnosis should be aware of what it means for their child in particular.

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Severity of Mental Retardation

▶Retardation, Degrees of

Sex-Education Programs

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Synonyms

Sexuality education

Definition

According to the Sexuality Information and Education Council of the United States (SIECUS), "Sexuality education is a lifelong process of acquiring information and forming attitudes, beliefs, and values. It encompasses sexual development, sexual and reproductive health, interpersonal relationships, affection, intimacy, body image, and gender roles" [6]. A sex-education program is one way by which children may learn about sexuality.

Description

In today's society, the sexual health of youth is of paramount importance. According to a recent study by The Guttmacher Institute [1], adolescents in the United States are having sexual intercourse, becoming pregnant, and contracting sexually transmitted infections (STIs). Specifically, 46% of all adolescents aged 15–19 years old have

engaged in sexual intercourse. In addition, approximately 750,000 teenage girls become pregnant each year. Of these pregnancies, 82% are unintended and over 25% are terminated by abortion. In comparison to other developed countries, such as England, Wales, Canada, the Netherlands, and Japan, this rate of teenage pregnancy ranges from twice to eight times greater. Finally, estimates of adolescent STI contraction approximate nine million new cases per year. Given the seriousness of these findings, it appears imperative that measures be taken to ameliorate these problems.

One possible solution to the sexual health problems of youth is sexuality education. Recently, Kirby [3] reviewed the effectiveness of programs for reducing teen pregnancy and STIs. Five general types of sexuality education exist: comprehensive sexuality education, abstinence-based, abstinence-only, abstinence-only-until-marriage, and fear-based programs [6]. Historically, controversy has existed regarding comprehensive sexuality education versus abstinence-only education, and this controversy has had a significant impact on federal funding of sexuality education programs [1]. That is, until recently only abstinence-only programs received federal funding. In practice, then, fewer adolescents were receiving information about birth control, and more adolescents were receiving information about abstinence. Interestingly, however, research demonstrating the effectiveness of abstinence-only education is lacking [1]. Abstinence-only education does not appear to delay the onset of engagement in sexual activities, and it may inadvertently result in an increase in unwanted pregnancies and STIs – as youth may be discouraged from using contraception.

Conversely, research suggests that comprehensive sexuality education, including an emphasis on skills building, is effective in reducing/preventing adolescent pregnancy and contraction of STIs [1, 3]. Sex-education programs are based on a model of comprehensive sexuality education emphasize abstinence is the only 100% effective method of preventing pregnancy and STIs and also address contraception, particularly for adolescents who are already sexually active [3]. The goals of comprehensive sexuality education may be viewed in terms of long-term goals and instrumental goals that work toward the attainment of the long-term goals. The long-term goals are threefold: (a) to postpone the onset of sexual intercourse, (b) to increase the use of contraception and condoms, and (c) to decrease pregnancy and birth rates. The instrumental goals of comprehensive sexuality education are fourfold: (a) to deliver correct knowledge to youth regarding human sexuality, (b) to offer a forum for youth to "develop and understand their values, attitudes, and insights about sexuality," (c) to assist youth in the acquisition and improvement of interpersonal skills, and (d) to help youth demonstrate responsible sexual behavior [6]. Comprehensive sexuality education programs do not appear to negatively influence one's age of initial sexual intercourse, the frequency with which one has sexual intercourse, or the number of sexual partners one has [3]. Rather, comprehensive sexuality education programs have been shown to help delay the onset of sexual intercourse, decrease the number of sexual partners one has, and increase the use of contraceptives [1].

Schools are advantageous settings for sex-education programs [1, 2, 4, 5]. First, schools provide a structured system that allows for sexually education programs to reach all youth [4]. Second, considering the risk factor of age, schools provide access to young students (e.g., late elementary school) who will benefit most from sexuality education [4]. Finally, being in school is related to fewer at-risk sexual behaviors and lower pregnancy rates; therefore, a sexuality education program within a school may be more effective than one outside of school [2]. SIECUS has published guidelines for content that is appropriate for sexuality education of school-aged children [6].

Despite the many advantages of providing sexuality education in schools, controversy exists [1, 5]. First, although the policy of more than 66% of public school districts includes sexuality education [1], some wonder if school is the appropriate site to teach sexuality [5]. Second, among those who agree sexuality should be taught in school, debate exists between proponents of abstinence-only education and proponents of comprehensive sexuality education programs [1, 5]. For example, of the schools that have a policy to teach sexuality education, 86% require the promotion of abstinence. Specifically, 35% require instruction of abstinence only, while 51% allow for instruction of contraception as long as abstinence is taught as the preferred method. Furthermore, 50% of southern public school districts with a policy to teach sexuality education teach abstinence only, while only 20% of northeastern public school districts adhere to the same policy [1].

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Sexual Abuse

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Synonyms

Incest; Molestation; Sexual victimization; Shaken baby syndrome

Definition

The term "child sexual abuse" is complex. It is surprisingly difficult to define as operational definitions of each word in the term have varied across clinical, legal, and research contexts. Child sexual abuse is most commonly defined as sexual activity with a child where consent is not or cannot be given. This includes all sexual contact with children in which force or threat of forced is used, regardless of the age difference between participants. This also includes all sexual contact between a child and an older person (typically 5 or more years older) regardless of whether force or coercion is used.

Description

Sexual behaviors may involve contact or noncontact offenses. Noncontact offenses include genital exposure, voyeurism, showing a child pornographic material, or having a child undress or masturbate. Contact offenses include genital touching, oral sex, and digital, object or penile penetration (vaginal or anal).

Perpetrators that are a family member, including distant relations, in-laws, and step-relations are typically referred to as "intrafamilial," whereas perpetrators who are not related by marriage or blood are referred to as "extrafamilial." The majority of child sexual abuse cases involve intrafamilial perpetrators and a substantial proportion of extrafamilial offenders are known to the victim. Approximately 5–15% of offenders are strangers to the child.

Although adult men commit the majority of sexual assaults, a significant minority of sexual assaults are committed by youth. The Federal Bureau of Investigation's National Incident-Based Reporting System has indicated that youth under the age of 18 are responsible for 40% of the sexual assaults involving children under the age of 6. The majority of adolescent-perpetrated child sexual abuse involves intrafamilial victims.

It is important to note that all 50 states have laws that require certain professionals (e.g., physicians, nurses, social workers, day care workers, psychologists, and law enforcement personnel) to report suspected maltreatment. This requirement overrides professional confidentiality requirements and in most states, 24-hour reporting is available via a toll-free phone number.

Incidence and Prevalence

Child sexual abuse is an alarmingly prevalent problem in the United States. According to reports from child protective service agencies, in 2006 there were approximately 80,000 substantiated cases of child sexual abuse at the rate of 1.1 per 1000 children [6]. It is widely acknowledged that these figures do not represent accurate estimates. Many incidents of child sexual abuse, perhaps the majority, are never reported to law enforcement. Based on a comparison with retrospective reports and surveys with nationally representative samples, some reviews of research suggest that national incidence figures may represent less than one third of all occurring cases of child sexual abuse in the United States.

Child sexual abuse is pervasive across income levels and racial, cultural, and ethnic groups. The mean age of sexual abuse victims is approximately 9 years, ranging from infancy to age 17. Girls are significantly more likely to be sexually abused, although boys are more likely than are girls to be abused by an extrafamilial offender. Risk factors for child sexual abuse include physical or cognitive disability, and living with a parent whose ability to adequately nurture and supervise is compromised by substance abuse, violence, poverty, and single-parent status.

From 1990 to 2005, the number of cases of sexual abuse substantiated by child protective service agencies declined 49%. This is likely due to a combination of factors, including policy or program changes in child protection agencies, increasing awareness about child sexual abuse, improved parenting practices, economic improvements, greater numbers of agents of social intervention, and more effective treatment for mental health problems [1].

Consequences

Child sexual abuse, like other forms of adversity or trauma, does not affect children in a predictable or consistent fashion. The impact of the abuse depends not only on the severity and chronicity but also on how the abuse interacts with the child's individual, familial, and community characteristics. Further, research indicates that some youth exhibit little to no emotional or behavioral symptomatology after the abuse [2].

Nonetheless, research conducted over the last two decades indicates that child sexual abuse constitutes a major risk factor for a wide range of emotional and behavioral problems which can potentially be long-lasting. Short-term consequences include emotional distress and externalizing behaviors, including depression, anxiety, poor self-esteem, suicidal ideation, posttraumatic stress, substance abuse, self-harm behavior, sexual behavior problems, and delinquency. Further, research indicates some children exhibit difficulties with interpersonal relationships and social competence and negative or distorted attributions. However, two domains stand out as significantly more prevalent in sexually abused samples as compared to appropriate comparison groups (e.g., non-abused clinical samples). These domains are sexualized behaviors (e.g., excessive masturbation, exhibitionism) and posttraumatic stress symptomatology (e.g., reexperiencing the abuse, avoiding reminders of the abuse, and hyperarousal).

Similar to childhood consequences, long-term consequences of child sexual abuse also include emotional and behavioral disturbance, including chronic anxiety, depression, and anger, substance abuse problems, and negative or distorted attributions. Further, difficulty with interpersonal relationships and sexual problems (e.g., sexual dysfunction, sexual preoccupation) are more often reported by women sexually abused in childhood than their nonabused counterparts. Finally, women who have been sexually abused as a child are at a substantially higher risk of being physically and/or sexually abused in adulthood [3].

Treatment

There is a growing empirical literature on efficacious treatments for sexually abused and traumatized children [4, 7]. Interventions include brief psychoeducation and crisis interventions, short-term abuse-focused treatments and longer, more comprehensive interventions. Brief psychoeducation and crisis interventions are often implemented at the time of disclosure and are designed to assess the child and his/her family's needs and provide training in effective coping strategies. Brief interventions are appropriate for asymptomatic children and are intended to prevent future sexual abuse and buffer the associated risk of developing psychopathology.

Abuse-specific cognitive behavioral treatment (CBT) is the most extensively researched intervention for child victims of sexual abuse. Reviews of the treatment outcome literature indicate this treatment is an effective treatment for post-traumatic stress reactions [5]. Abuse-specific CBT utilizes principles that have been shown to be effective with a number of emotional and behavioral problems. Components of the treatment include: psychoeducation, anxiety management, exposure, and cognitive therapy. Children and parents are provided knowledge and skills related to processing the abuse, managing distressing thoughts, feelings and behaviors associated with the abuse, enhancing safety and preventing revictimization. The majority of the most rigorous studies have included non-offending caregivers in the treatment protocol [5]. Inclusion of caregivers is important to address parental reactions, distress, and supportive recovery of the sexually abused child. Furthermore, inclusion of caregivers is essential for more comprehensive intervention, which may address behavior problems (such as noncompliance and oppositionality) with behavior management techniques or sexual behavior problems with behavior management techniques and parental supervision, communication, self-control, and sexual behavior rules.

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Sexual Assault

►Self Identity: Sexual Abuse of Adolescents

Sexual Exploitation

►Self Identity: Sexual Abuse of Adolescents

Sexual Identity

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Synonyms

Bisexual identity; Gender identity; Heterosexual identity; Homosexual identity; Sexual orientation

Definition

Sexual identity can be defined as the understanding of one's values, beliefs, and roles as a sexual being; this is developed through the comprehensive process of exploring, assessing, and committing to one's sexual orientation and gender identity [5–7].

Description

Sexual identity is the process of developing a personal sense of self as a sexual being and encompasses one's sexual orientation and gender identity. Sexual orientation is defined as an individual's sense of personal and social identity based on one's sexual attractions, behaviors expressing those sexual attractions, and membership in a community of others who share them [2]. Individuals may identify as homosexual (attraction to one's same sex), heterosexual (attraction to one's opposite sex), or bisexual (attraction to one's same sex and opposite sex). Gender identity is defined as an individual's personal sense of identification as male or female [7]. In accepting one's sexual orientation and one's gender, an individual is able to formulate a personal set of values, beliefs, and roles.

Sexual identity processes may differ based on one's sexual orientation and gender. For a gay, lesbian, bisexual, or other non-heterosexual individual, sexual identity is developed through acknowledging one's same-sex attractions and identifying oneself as non-heterosexual [3]. For a heterosexual individual, sexual identity is developed through acknowledging one's opposite-sex attractions and identifying oneself as heterosexual [6]. A non-heterosexual individual (e.g., gay, lesbian, or bisexual) recognizes the societal ramifications of accepting a non-heterosexual identity, including the stigma, discrimination, and marginalization that may occur. Conversely, a heterosexual individual may recognize the acceptance and privilege that one may have as a heterosexual being.

Sexual identity also includes the process of accepting one's gender identity. Gender identity is the process in which an individual identifies as male or female, regardless of one's biological sex at birth. Gender identity is influenced through biological and sociological factors (e.g., biological factors including one's reproductive organs and hormones, sociological factors including one's family influences and societal messages about gender roles). Gender identity differs from sexual orientation, in that sexual orientation refers to whom one is sexually attracted to, while gender identity refers to the gender that one identifies with. For example, an individual who was born as a biological male may identify as a woman but may be sexually attracted to women; this individual might be described as a transgender woman (gender) and lesbian (sexual orientation).

There are several models of sexual identity development that describe processes for lesbian, gay, and bisexual individuals [5, 6]. One of the earliest and most widely recognized models in psychology is Cass's [1] six-stage model of gay and lesbian identity development, which consists of six stages: (a) *Identity confusion* (questioning one's initial experiences of same-sex attraction), (b) *identity comparison* (internalizing the stigma that accompanies same-sex attractions) (c) *identity tolerance* (assuming that experiences of same-sex attraction means that one is likely gay or lesbian), (d) *identity acceptance* (identifying same-sex attraction as indicative that one is gay or lesbian), (e) *identity pride* (accepting oneself as gay or lesbian and identifying with other gay or lesbians), and (f) *identity synthesis* (integrating one's sexual orientation into one's sense of self).

Sexual identity can be influenced by a number of factors, including one's religion, culture, and family [4, 7]. Most major world religions teach negative messages about non-heterosexual orientations and/or refer to gay, lesbian, or bisexual orientations as "immoral" or a "choice." Additionally, in most cultures and societies, lesbian, gay, and bisexual individuals are stigmatized and marginalized; in some countries, homosexuality or bisexuality is illegal and prone to punishment. Finally, an individual's family may also provide messages about sexual identity to its members, particularly to one's children.

These familial messages are heavily influenced by culture, religion, and the media.

Through the development of sexual orientation and gender identity, along with messages from family, culture, and media, an individual is able to develop values, beliefs, and roles as a sexual being. Sexual identity values may include the importance of family, community, individuality, or freedom of expression in one's life. Sexual identity beliefs may include one's thoughts about equal rights, same-sex marriage, raising children, or practicing monogamy. Sexual identity roles may include how one behaves in romantic relationships, in family systems, in friendship networks, and in work settings. The cumulative development of these values, beliefs, and roles all contribute to one's personal sense of self as a sexual being.

Relevance to Childhood Development

Sexual identity development may begin during early childhood, when an individual recognizes her/his first sexual attractions to others. This first awareness of sexual attraction is often described as beginning with the Oedipus complex for boys or the Electra complex for girls. The Oedipus complex is defined as a stage in life where a boy is fixated on his mother and competes with his father for maternal attention, while the Electra complex is defined as a stage in life where a girl is attracted her father and rivals with her mother for paternal attention. Sexual identity development continues when children interact with peers for the first time and they experience sexual attractions with individuals of their same sex or opposite sex or both. These early experiences with sexual attraction during childhood may have lasting impacts on one's sexual identity during adulthood and may influence how one understands sexual orientation and to whom individuals are sexually and romantically attracted.

Additionally, children begin to learn about sexual orientation, gender and gender roles from their families, schools, religious groups, and the media during early childhood. These messages may influence one's ability to explore sexual orientation, gender roles, and gender expectations in positive and negative ways. For example, young boys may be encouraged to be leaders and authoritative while young girls may be encouraged to be more submissive or passive. Concurrently, young girls may be encouraged to be more emotionally expressive while young boys may be encouraged to repress emotions. Both groups may also learn that it is important to behave according to their gender norms and only be romantically attracted to the opposite sex.

These messages about sexual orientation and gender from early childhood may have lasting impacts on one's sexual identity as an adult. When children receive positive messages about sexual identity from their families and other role models, they are likely to gain better self-definition and positive self-esteem during adolescence; conversely, if they receive negative messages about sexual identity, they are likely to suffer other mental health consequences, particularly if they identify as gay, lesbian, or bisexual [4].

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Sexual Intimacy

▶Sexual Relationships

Sexual Labels

▶Sexual Orientation

Sexual Maltreatment

▶Self Identity: Sexual Abuse of Adolescents

Sexual Molestation

▶Self Identity: Sexual Abuse of Adolescents

Sexual Orientation

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Synonyms

Sexual identity; Sexual labels

Definition

Sexual orientation is a construct involving sexual attraction that encompasses a variety of domains and includes behavioral, emotional, and social manifestations. Sexual orientation pertains to sexual attraction but may not result in the commission of sex acts or other sexual behavior. Despite instability in the reporting of sexual orientation or manifestations of sexual attraction over time, sexual orientation is considered to be an enduring trait that may manifest differently across the lifespan.

Description

According to the American Psychological Association (2004), "sexual orientation is an enduring emotional, sexual, or affectional attraction toward others," inherently different from biological sex, gender identity, and gender roles [1]. While many view sexual orientation as exclusively linked to sexual behavior, sexual orientation in its truest form pertains to persistent patterns of attraction across a variety of domains, regardless of whether or not the attraction results in any sexual act. Over the course of the past 50 years, heterosexuality, or attraction to members of the opposite sex, homosexuality, or same sex attraction, and bisexuality, attraction to members of both the same and opposite sex, have emerged as the most frequently researched manifestations of sexual orientation. However, though frequently conceptualized as a largely dichotomous concept, with individuals identifying exclusively as heterosexual or homosexual, and some oriented in between (bisexual), research indicates that sexual orientation is most accurately represented as a continuum of orientations [11–13]. According to Kinsey, who developed the Heterosexual–Homosexual Rating Scale [11], individuals may find that their sexual orientation is most accurately characterized by degrees of attraction ranging from exclusively heterosexual to exclusively homosexual. Specifically, Kinsey posited that sexual orientation can be described as exclusively heterosexual, no homosexual; predominantly heterosexual, only incidentally homosexual; predominantly heterosexual, more than incidentally homosexual; equally heterosexual and homosexual; predominantly homosexual, incidentally heterosexual; predominantly homosexual, more than incidentally heterosexual; and exclusively homosexual.

Kinsey's description of sexual orientation as existing along a continuum was furthered by Dr. Fritz Klein, who also subscribed to a multi-dimensional notion of sexual orientation and attraction. However, unlike Kinsey, Klein's model, operationalized by the Klein Sexual Orientation Grid, attends to the notion that sexuality is comprised of a variety of factors, including emotional, social, and lifestyle components, in addition to more traditional aspects of human sexuality, such as sexual attraction, sexual behavior, and sexual fantasies. Klein asserted that each of the aforementioned aspects of sexual orientation can change over time, conflicting with previously held notions of sexual orientation as stable and fixed, and are best evaluated by identifying past, present, and ideal descriptions of behavior. Like Kinsey's model, Klein's approach affords the option for those completing the grid to indicate a variety of interests, ranging from "other sex only" to "same sex only," as well as orientations, ranging from "heterosexual only" to "homosexual only," with a variety of response gradients in between exclusive orientations and identities. However, unlike Kinsey's model, Klein's model allows respondents the ability to differentiate between sexual behavior and lifestyle choices, thus allowing for identification of situations where respondents private sexual identity may not match their public (lifestyle) identity.

Prevalence of Nonheterosexuality

Current reported rates of homosexuality in the United States range between 2 and 4% of the total population [6]. However, methodologically, much research regarding the prevalence of homosexuality is plagued by the tendency to examine sexuality as a discrete variable, encompassing only heterosexuality, homosexuality, and bisexuality. As asserted by Diamond [7], as well as Savin-Williams and Reams [17], variations in sexual orientation are best examined by evaluating sexuality along a continuum, including same sex behavior, sexual attraction, romantic relationships, public lifestyle, emotional attraction, and fantasy. Furthermore, in accordance with Klein's suggestion that past and future sexual orientation and behavior may deviate from present orientation, Savin-Williams and Reams also suggest that self-report of sexual orientation may not be fixed, reflecting degrees of self-awareness or active engagement in same or different sex behavior, and should be investigated across time.

Holistically, research conducted over the past 10 years suggests that when the definition of sexual orientation is

broadened to include domains outside of sexual behavior, such as emotion and fantasy, rates of homosexuality or bisexuality increase significantly from established base rates in the population. It has also been found that significantly more women than men self-identify as nonheterosexual [17]. Likewise, research indicates that report of sexual orientation among nonheterosexual populations typically varies over time, while report of sexual orientation among the majority of heterosexuals tends to remain stable [17]. Consequently, research identifying instability in reports of sexual orientation among nonheterosexuals suggests that sexual orientation may be a construct that behaviorally manifests differently over time (2007).

Determinants of Sexual Orientation

To date, no research definitively identifying the cause of sexual orientation differences has been published [2, 4]. Numerous hypotheses regarding the development of sexual orientation have been tested, yielding a variety of biologically based variables correlated with sexual orientation. Possible genetic determinants related to the x chromosome have been investigated [3, 4, 8, 9, 14, 15]; as well as hypotheses involving hormonal factors [10], and differences in brain anatomy, particularly in the hippocampus and hypothalamus [5, 16, 18]. Despite a long history of competing determinants of sexual orientation, sexual identity, and attraction is primarily believed to be biologically mediated. However, social and environmental factors may serve to influence the degree to which an individual fully espouses and expresses their sexual orientation.

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Sexual Prejudice

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Synonyms

Heterosexism; Homonegativity; Homophobia; Sexual stigma

Definition

Sexual prejudice encompasses all negative attitudes and assumptions directed toward an individual or group based on sexual orientation.

Description

Sexual prejudice occurs when an individual harbors negative attitudes about an individual or group based on sexual orientation [2–4]. The target of sexual prejudice can be of any sexual orientation (homosexual, bisexual, or heterosexual). However, as with other forms of prejudice, the groups that suffer most from sexual prejudice are those that have been ascribed marginal status by society.

As such, those whose sexual orientation is labeled as homosexual (i.e., gay, lesbian) or bisexual are most likely to be targets of sexual prejudice. The manifestation of sexual prejudice occurs in various ways, such as heterosexuals possessing negative attitudes about homosexual behavior or expressing negative attitudes towards individuals or groups of people who are homosexual or bisexual. Sexual prejudice can be expressed through verbal statements, non-verbal facial expressions, or actions ranging from avoidance to violence, for example.

Psychologist Gregory M. Herek, a scholar of sexual orientation-based prejudice and antigay violence, coined the term sexual prejudice [2]. The term was offered as a broader way of conceptualizing the negative attitudes and beliefs directed to individuals and groups based on sexual orientation. Further, use of the term sexual prejudice may serve as a more appropriate descriptor when identifying or studying antigay attitudes, which has previously been associated with the terms homophobia and heterosexism. More specifically, use of the term sexual prejudice may be more appropriate because its use does not define the origins of antigay attitudes or beliefs.

Relevance to Childhood Development

Children can be the targets and aggressors of sexual prejudice. Issues and experiences of sexual prejudice can arise when children become aware of sexual orientation differences between themselves and others. As children begin to gain an awareness of their sexual orientation, they begin to display behaviors that can be considered gender normative, gender neutral, or gender variant. Gender normative behavior is typically displayed by children whose sexual orientation is consistent with a heterosexual orientation. However, gender neutral or gender variant behavior is likely to be displayed by children who identify with a homosexual or bisexual orientation. As children begin to engage in behaviors that are not consistent with a heterosexual orientation, the potential for being the target of sexual prejudice increases.

Childhood is full of many developmental milestones. One of the milestones salient to identity development in children is that of first awareness of sexual orientation. The first awareness of one's homosexual or bisexual orientation is believed to occur between ages 9 and 11 [6]. The behavior of children is influenced in part by their awareness of their sexual orientation. Sexual prejudice is likely to be directed towards children who begin to engage in behavior that is influenced by their homosexual or bisexual orientation. Other developmental milestones that contribute to the likelihood of becoming the target of sexual prejudice include first same-sex encounter, first self-label of gay, lesbian or bisexual, and first disclosure of sexual orientation. These milestones are reached at various ages; however, research indicates that they can all occur during the childhood and adolescent years.

Peer pressure is a psychological construct that contributes to the likelihood of a child becoming an aggressor of sexual prejudice [1]. As the child begins to notice the gender norms for his or her environment, they also begin to notice the children who are not behaving in what is considered a gender appropriate manner. Children can be greatly influenced by their peers to behave in many different ways. An environment that values and adheres to a rigid definition of gender appropriateness is likely to encourage children to adopt these same rigid values. As children begin to identify those children who are behaving in gender neutral or gender variant ways, they are likely to be influenced by their peers to think about and treat these children differently. In an environment where difference is not tolerated, the children have an increased potential for treating the children who behave in gender neutral or gender variant ways negatively.

Children who are the targets of sexual prejudice are likely to experience an array of negative experiences, which can impact their level of psychological wellbeing [5]. Children who are exposed to environments where they are made to feel inferior, deviant, and unwelcome can develop a low sense of self-worth and low self-esteem. These children can also develop higher rates of depression and feelings of hopelessness. Additionally, children who have experienced sexual prejudice can also develop a heightened level of sensitivity and awareness for their surroundings, which can increase their potential for developing anxiety disorders. All of these threats to a child's sense of wellbeing can lead to an increased susceptibility for suicidal ideation and suicidality.

In order to prevent sexual prejudice amongst children, attention needs to be placed on environmental factors [5]. Policy makers, educators, healthcare providers, and parents can take steps towards creating an environment that is more knowledgeable and accepting of gay, lesbian, and bisexual children. Since many of the peer interactions that create the potential for sexual prejudice in childhood occur in a school setting, educators can be influential in leading efforts to make schools a safer and more welcoming environment for gay, lesbian, and bisexual children. Children can be educated about sexual orientation differences. Support groups and peer ally groups can be created in the school to improve the awareness around sexual orientation issues. Mental health professionals can be made available to children who need support in processing their experiences of sexual prejudice. Parents can take

a leadership role by advocating that schools institute programs geared towards educating their children about sexual orientation issues. Preventing and dealing with sexual prejudice successfully requires the involvement of the entire community.

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Sexual Relationships

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Synonyms

Intimate relationships; Mate selection; Pair bonding; Sexual intimacy

Definition

A sexual relationship is a relationship between two people that includes sexual intimacy. The main forms of intimacy are physical and emotional, but sexual relationships do not have to include both of these components.

Description

There are different kinds of sexual relationships defined by the gender of the people involved: heterosexual relationships involve a male and a female, homosexual relationships involve two people of the same sex, and people identified as bisexual typically either engage in both kinds of relationships or have a sexual attraction to people of both sexes. Sexual activity between a child and either an older adolescent or adult, or exploitation of the child for sexual gratification, is child sexual abuse defined by criminal and civil law. Age of consent for adolescents to have a sexual relationship according to law varies from country to country from age 12 to 20, although the modal age is 14 or 15 according to some sources, and subject to a variety of qualifications related to issues like permissible age differences, marital status, and what kind of activity is allowed, that again vary by country.

Relevance for Childhood Development

One third of 13 year-olds and two thirds of 18 year-olds self report having been in a romantic relationship in the past 18 months, and about half of North American high school students have experienced a sexual relationship that included intercourse. Sexual relationships are seen as a subset of romantic relationships as sex is a behavior that takes place within romantic relationships or is promised for the future, but sex can also take place outside of them [5, 7]. The evolutionary context of romantic relationships involves a combination of three behavioral systems that have been historically argued to be independent: attachment, caregiving, and sex [2, 6].

Sexual relationships have been studied for a variety of reasons in adolescence. One area of research involves risky sexual behavior [11]. Significant percentages of adolescents engage in risky sexual behavior, which includes having unprotected sex, sex while impaired, and involvement with multiple partners or at an early age. These kinds of behaviors are related to sexually transmitted diseases, involvement in unwanted sexual behavior, and teenage pregnancy. These negative outcomes have resulted in studies of motives for sexual behavior such as having sex to either gain social status or to maintain a relationship [10], as well as HIV and pregnancy prevention programs which target teenagers [8, 12]. These kinds of studies often identify populations of adolescents who tend to engage in risky sexual behavior, such as adolescents from low socioeconomic status, from single parent families, or from the inner cities. How adolescents feel invulnerable to normative risk factors (e.g., "it will not happen to me") is also an issue. Another area of concern is when sexual relationships are coercive or exploitive, which compromises consent and appropriate motivational issues regarding the sexual relationship [3].

Another area of research examines how sexual and romantic relationships arise in adolescence. For example, relationship researchers have speculated that adolescent sexual relationships arise as an extension of peer relationships, and represent a further distancing of teens from their parents [1, 4]. Sexual and romantic partners can ultimately be a new secure base to turn to when distressed, whereas parents typically are used to meet those needs in

infancy and childhood. Mate selection is another focus so that how sexual partners are selected can be understood, and it is felt that secure children make relatively healthier choices in their sexual relationships.

A final area of interest is how teenagers can best be educated about sexual relationships, risk factors, and sexuality in general. There is a presumption that education can help teenagers make better decisions in their lives. Alternatives to education, such as the "Abstinence Only" teenage pregnancy prevention campaign in the United States in the 1990s, have not been effective as they do not include an educational component. There have even been ideologically driven objections to funding research on sexual relationships in adolescence out of concerns that such research would be counterproductive to efforts to discourage casual sex amongst teens [9].

Sexual relationships in adolescence ultimately are of interest to developmental psychologists, medical personnel with a focus on prevention and community-health, family-support workers, and educators [13].

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Sexual Stigma

▶Sexual Prejudice

Sexual Victimization

▶Self Identity: Sexual Abuse of Adolescents
▶Sexual Abuse

Sexuality Education

▶Sex-Education Programs

Shaken Baby Syndrome

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Synonyms

Battered child syndrome; Child abuse; Child maltreatment; Non-accidental trauma; Sexual abuse; Whiplash Shaken Infant Syndrome

Definition

Shaken baby syndrome (SBS) is a form of child abuse that occurs when an abuser violently shakes an infant or small child, creating a whiplash-type motion that causes acceleration-deceleration injuries.

Description

SBS, or also simply known as SBS, is becoming one of the leading issues of child maltreatment. In the United States alone, over 250 out of 1000 maltreated children die each year due to SBS. This number may be higher than reported as many cases have gone unrecorded since it was hard to properly label child abuse fatalities. Since SBS is a difficult syndrome to define, it further increases the difficulties

in determining the frequency of such cases. SBS, which causes head injuries by violently shaking an infant, is not a new type of child maltreatment. The first incomplete autopsy findings of such abuse was recorded in the year 1860, by Professor Ambrose Tardieu of the University of Paris. Although no shaking was specifically mentioned, he revealed that by investigating 32 cases of child abuse, some victims were "pulled all over the place" and had lesions at their arms and chest due to rough handling. However, it was only in the year 1946 that John Caffey coined the term Whiplash Shaken Infant Syndrome to describe 27 children with subdural hematoma, a type of brain injury, who had received whiplash shaking but had no history of trauma.

There are about 14 common signs and symptoms of SBS. Below is the list of them:

1. Apnea, an interruption in the regular rhythm of respiration
2. Bradycardia, having a heart rate of less than 60 beats per minute
3. Bradypnea, an abnormal slowness in breathing
4. Bulging fontanelle, swelling on the infant head's soft spot due to excess of fluid, blood and inflammation within the brain's substance
5. Coma, a state of unresponsiveness
6. Cyanosis, the lack of oxygen in the blood which causes the infant's lips and skin to turn into a bluish purple color
7. Eyes rolling back or staring
8. Hypothermia, abnormally low body temperature
9. Inconsolable irritability
10. Internal damage but with no external injuries
11. Lethargy, appearing sleepy, or hard to arouse
12. Seizures and status epilepticus
13. Tensing or drawing up limbs; and
14. Vomiting

Clinical characteristics of an infant with SBS may include retinal hemorrhage, subdural and/or subarachnoid hemorrhages but with no external trauma. Nevertheless, a diagnosis of SBS should not be made just by these symptoms alone, but, the combination of clinical history, diagnostic images and the abovementioned signs and symptoms.

The perpetrators of SBS can be anyone, but generally they are parents or caregivers of the child. Most often, shaking occurred not to injure the child but to control the child's behavior. There are many characteristics of SBS perpetrators, but only three will be noted here. First, SBS perpetrators were often abused as children too. Since these people grew up in a negative environment, they may believe that corporal punishment is justified, and may not see the wrong in shaking a crying child to silence him or her. Second, caregivers with psychiatric disorders show an increased probability of being a perpetrator of SBS. The psychopathology impacts the relationship between the caregiver and the child, and the caregiver has a lower ability to deal with the stress of raising a child. Third, lack of social support and social isolation has been highlighted as one of the factors that increases the risk of infant shaking. This social isolation by the caregivers increases their frustration and limits their sources to proper caregiving and child development. Abusive behaviors are found to occur especially during periods of overwhelming stress.

Relevance to Childhood Development

This syndrome is a serious form of child maltreatment because of the severe consequences it produces to the shaken infant. Vigorously shaken infants are subject to possible brain injuries. A child who experienced a minimal aftereffect of the shaking often develops attention issues and may be easily distracted. In addition, this child may develop emotional problems and attachment disorder. Normally, the conditions above happen to shaken children who were not discovered or even diagnosed. However, in severe cases, the shaken child might end up having balance problems, blindness, cerebral palsy, deafness/hearing problem, and even death. Balance problems are related to an injury to either the basal ganglia, cerebellum or the inner ear. Retinal hemorrhaging may develop as a result of SBS and this may lead to partial or total blindness while cerebral palsy impairs the child's motor skills. Since a shaken child may suffer damages to the eighth cranial nerve, bones of the inner ears and the cochlea, the child is susceptible to hearing problems or even deafness. Death often occurs due to uncontrolled increase of intracranial pressure. This is a result of injuries to the cerebral edema or hemorrhage. Shaken children under 6 months of age are exposed to a higher risk of dying.

Since SBS also leads to motor skills impairment, shaken children are also left with poor oral motor function. They are unable to chew or swallow, and might also experience gastroesophageal reflux, whereby food from their stomach is brought back into the esophagus. A SBS child might also have hydrocephalus, the enlargement of the brain due to excessive build up of fluid in and around the ventricles of the cranial space. Other complications due to traumatic brain injuries include hypersensitivity, learning disabilities, and mental retardation. Shaking could slow down the brain's rate of growth, causing the child to have microcephaly, which is defined as possessing an abnormally smaller head than the normal population.

Damage to the spinal cord can result in paralysis to the child while with severe brain injuries, the child might be left in a persistent vegetative state.

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Shakow, David

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Life Dates

1901–1981

Educational Information

Born in New York City, David Shakow attended Harvard University, where he earned his bachelor's and master's degrees in science. He began working toward his doctorate in psychology, but accepted a position at Worcester State Hospital in 1932 to support his family. In 1949, he accepted a position as professor in the psychiatry department at the University of Illinois Medical School. Two years later, he accepted a joint position to also serve as professor of psychology at the University of Chicago. In 1954, he left both of these positions to work at the National Institutes of Mental Health (NIMH). Shakow served as the first head of the Laboratory of Psychology in NIMH's Intramural Research Program. In 1966 he retired from his position, but continued as a senior research psychologist [2].

Accomplishments

At Worcester State Hospital, Shakow began his research into schizophrenia. His research helped to establish basic facts about schizophrenia and contributed to the research on the mental deterioration that accompanies the progress of schizophrenia. Additionally, Shakow helped emphasize the need to treat schizophrenics humanely [1].

During his work at NIMH, Shakow was awarded the Distinguished Scientific Contribution Award and the Distinguished Professional Contribution Award of the American Psychological Association [2].

Contribution

Shakow's dissertation (1946), *The Nature of Deterioration in Schizophrenia,* is recognized as a classic study of the disease. Shakow developed one of the nation's first clinical psychology internship programs [2].

Shakow also chaired the development of the Scientist-Practitioner Model of graduate training for clinical psychology, which was set forth at the famous Boulder Conference of 1949. Finally, Shakow's research at NIMH contributed to the areas of schizophrenia, perception, aging, childhood development, and personality [2].

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Shame

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Definition

A self-conscious emotion, evoked in situations of failing to achieve goals of personal importance and attributing the outcome to internal, uncontrollable causes such as lack of ability or intelligence.

Description

Shame is characterized as a highly intense self-conscious emotion that usually occurs as a result of failure of personal importance, such as living up to expectations or attaining personal goals and standards. It is evoked in situations in which failure has been attributed to a stable global aspect of the self (i.e., personality characteristics, ability), exemplified by the statement "I'm a stupid person." The intensity of shame is particularly strong when an individual fails an easy task. Shame is associated with feelings of helplessness, sadness, and depression; it involves a negative evaluation of the entire self and there is a great concern about the appearance of the self in the eyes of others [6, 10].

The experience of shame is accompanied by pronounced behavioral reactions such as lowering the head

and eyes, not maintaining eye contact, withdrawing from interaction, and diverting others' attention from the painful event. Physiological reactions including blushing, having difficulty breathing, and increased perspiration and heart rate. Psychological reactions include feelings of inferiority, humiliation, awkwardness, lack of confidence, loss of status, and loss of control [3, 8].

Shame could have an adaptive function as long as the recognized discrepancies between actual behavior and the ideal self serve as a motivator for change and improvement. Recurring shame, however, can result in generalized shame or a disposition for shame and as such can have devastating and de-motivating effects. Excessive feelings of helplessness, worthlessness, and incompetence across a variety of situations have been labeled a "shame-prone" style.

Relevance to Childhood Development

Shame is different from basic emotions such as sadness, as it involves a more elaborate cognitive process at the center of which is the self. Shame develops as the growing child acquires understanding of self-identity, social norms, and conventions [4, 6, 8]. Thus, shame is a higher-order, self-evaluative emotion, often considered a moral emotion as it reflects responsibility to self and others. The very first prerequisite condition for the genesis and development of shame is cognition. In order to be able to experience this emotion, children must be cognitively capable of mentally representing standards for behavior, of judging their own behavior or performance against these standards, and, in situations of failure, of reflecting upon the possible causes of their behavior which have prevented them from living up to their expectations [1, 6]. In addition to natural maturational processes in cognition, shame develops out of children's socialization experiences in the nuclear family. More specifically, shame develops as a result of parents' or significant others' use of evaluative feedback. Evaluative feedback, regardless of its valence (positive or negative), can foster the development of shame in several ways. Initially, the feedback serves to draw the child's attention to the social meaning associated with particular behavioral outcomes. Parents' frequent evaluative feedback leads to the child's internalization of parental values, norms, and standards for acceptable behavior. The perception of the social value of the outcome facilitates in turn the child's self-evaluation against the internalized standards, which are deemed to be at the center of the emotion of shame [1, 5, 6].

Shame takes different forms at different ages. Mascolo and Fischer [7] have delineated the sequence in the development of shame. The 7–9 months old infant reacts with distress when he engages in action which results in a failure to achieve a particular outcome. Between 11 and 13 months, the child's distress produced from failing a complex action is accompanied by an appraisal of other people's reactions. Toward the end of the second year of life, the child begins to attribute the negative outcomes of goal oriented behavior to the self as a cause of it. In the third year of life, the self, as a cause of the outcome, is labeled bad or poor. Preschoolers begin to judge their inadequate performance in an important area in reference to other people's performance in it. Also, they are capable of comparing their performance across different instances of the same situation and begin to generalize that they are lacking an important trait, which in turn is blamed for the failure. Between the ages of 6 and 8, children begin to judge their performance as poorer than that of other children and adults in several areas and become likely to infer that they do not possess the desirable trait to the same extent as other people do. Younger children are predominantly fearful of ridicule and embarrassment. Children younger than eight tend to explain their emotions of shame by the use of an external frame of reference, exemplified in statements such as "Mom would be ashamed of me if I did something wrong [3]." Elementary school children (10–12 years of age) become cognitively capable of analyzing the courses of ineffective actions and shame is more likely to be associated with generalized thoughts of incompetence. For example, a child can judge him/herself as lacking an athletic ability and being a poorer student comparative to other children, from which he/she concludes that in general he/she is less competent. Yet, in the adolescent years, shame could take on another manifestation: the adolescent could feel ashamed because of a characteristic or behavior of another person or group of people with identity related to theirs.

It has been argued that excessive shame reactions might originate from punitive parental socialization practices such as power assertion and love withdrawal [2, 4, 9]; that is, children whose parents rely on discipline techniques such us punishment or threat of punishment are much more likely to manifest maladaptive shame when they encounter a situation of failure [2, 9]. Moderate positive relationships have been found between maternal negative evaluations of performance and a child's expression of shame in situations of failure. In addition, it has been noted that the pattern of relationship between shame and feedback is consistent across genders. Thus, frequently communicated disappointment and criticism by parents may not only foster a child's negative self-evaluations but they also predispose that child to recurrent shame experiences. Research has also established that

girls tend to be more shame prone than boys and that mothers tend to offer more positive feedback to boys than to girls [2, 10].

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Shaping

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Definition

Shaping is a procedure by which new responses are formed using differential reinforcement of successive approximations to a target behavior.

Description

Components of shaping include beginning with a response that resembles the target behavior, gradually changing the response requirement, and differentially reinforcing the successive approximations to, or changes towards, the final target behavior [1]. For example, shaping can be used to teach an infant to speak a new word. Using the word "ready" as the target behavior, running with the infant can be done contingent on their approximating the word "ready." First, the requirement might be saying "rrr." The next approximation might be "red" and the final "ready." Once the infant has mastered one response, reinforcement is withheld until the infant engages in the next approximated response. When using shaping, one needs to be mindful of the size of the change in response requirement as too large a change can result in a breakdown of the response. Shaping is often used in teaching new behaviors, sometimes within the context of behavioral intervention programs.

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Shared Attention

►Joint Attention

Shared Focus

►Joint Attention

Shifting Attention

►Working Memory

Short-Term Memory

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Synonyms

Immediate memory; Working memory

Definition

Short-term memory (STM) is conceived of as an auditory based, limited-capacity part of the human memory. It is generally agreed to be involved with the encoding to and recall from the long-term stored information. Unless information is rehearsed, information in the STM usually lasts seconds to 1–2 min, although some researchers suggest retention periods as high as 1 h–2 days. At the end of this period information either is transferred to long-term memory or is lost. Miller [18] in a study showed what has come to be known as "7 + or − 2," which related to the limited capacity of items that could be held in the normal STM (e.g., 5–9). In work by Dean and colleagues [5], the processing of the STM was shown to be associated with an auditory base while long-term memory had a longer duration and processed information conceptually. STM has been proposed as a stage that information must pass through to enter long-term memory storage, and it is into STM that long-term memories are retrieved. STM only requires material be stored and reproduced immediately without requiring that the material be transformed or manipulated in any way.

Description

Through sensory input, individuals register and hold large amounts of information briefly in sensory memory (or sensory register). If the registered information is not further processed by STM, it will decay quickly. Thus, the sensory register is a filtering device while the STM is used for processing. Long-term memory represents, with rehearsal, a relatively permanent memory storage. STM is proposed as a stage that information must pass through to enter long-term memory storage, and it is into STM that long-term memories are retrieved. Because STM is a limited-capacity system, information within STM must be transferred to long-term memory as new information replaces it; otherwise it will decay.

STM is sometimes referred to as and used interchangeably with working memory in CHC theory. For many the definition of STM does not include "the requirement for active manipulation of information," embedded in the definition of working memory. Further, STM in the past was defined as retention of information over brief periods, and working memory was a limited-capacity memory system that provided temporal storage to manipulate information for complex cognitive tasks such as learning and reasoning. In other words, working memory is a cognitive process involving both retaining information and performing mental operations on that information prior to entry to long-term memory. Working memory contains information that can be acted on and processed, not merely the result of rehearsal. Additionally, working memory ensures that information will be available until it can be effectively encoded into long-term memory. Information placed in working memory may come from sensory memory, STM, or long-term memory [17].

Historically, Atkinson and Shiffrin [1] posited a three-part model of memory (sensory memory, STM and long-term memory) where the central feature was STM. According to their model short-term memories are fragile, contain only a small amount of information that is actively being used and are lost quickly (within 30 s or so) unless they are somehow repeated. A more current model involving STM is described by Gathercole and Alloway [8]. Theirs is a working memory model that involves three components: verbal short term memory, visuo-spatial short term memory and a central executive that serves an attentional and integrative role. In their model, verbal short term memory provides for the temporary storage or retention of sound patterns and language based materials that are mediated by the left hemisphere. The visuo-spatial short term memory component is mediated by the right hemisphere and involved in recalling shape, orientation and visual features of objects, and patterns of movement. Currently, research indicates that STM passively stores information, that it is domain specific (e.g., verbal or visual) and that it can operate independently of long-term memory and working memory [12].

Neuroanatomy of Memory/Retention of Information

Studies of healthy people and patients with amnesia have revealed that memory does not consist of a single undivided whole but rather a variety of different structures, each mediated by different component processes which in turn are subserved by different neural mechanisms. Evidence from sources of functional imaging techniques and studies of patients with memory impairments and animals indicates that the medial temporal lobe (primarily the hippocampus and secondarily the amygdala) and the midline diencephalon (the dorsomedial nucleus of the thalamus) are essential brain structures for normal learning and retention. These structures permit the storage of information until consolidation is complete. Neuropsychological research indicates that left parietal-temporal lobe dysfunction disturbs short-term (and working) memory. Lesions in this area impair the ability to recall a string of digits. Left sided lesions result in verbal impairments, and right sided lesions result in STM impairments for spatial location [11].

Relevance to Childhood Development

Memory complaints are among the most frequent patient complaints in clinical neuropsychology, and STM deficits

are a common feature of many childhood disorders, including traumatic or acquired brain injury, congenital brain injury (anoxia), seizure disorders, attention disorders, autism, endocrine disorders, genetic disorders such as Prader Willi Syndrome, Turner Syndrome, XXY Syndrome, and numerous neurodevelopmental disorders such as metabolic disorders. Memory function takes precedence over acquiring new skills and directly impacts the retention of information and skills. Therefore, assessing the performance of the various aspects in the memory system is imperative in detecting and identifying possible memory disorders. Most standardized batteries of intellectual functioning in children and adults have incorporated tasks of STM. Children do not use rehearsal strategies until about age 8 or 9, so young children's STM capacity is quite limited. Most children reach adult capacities about age 10–12. Additionally, at about age 8, children develop a strong preference for using verbal STM skills when possible, even to retain visual-spatial STM stimuli because verbal STM is more accurate and efficient. The three most widely used memory batteries for children are the *Wide Range Assessment of Memory and Learning-II* (WRAML-II), *the Test of Memory and Learning-II* (TOMAL II), and the *Children's Memory Scale* (CMS).

Due to variations in etiology, age of onset, and resulting impairments of memory systems, the prognosis for improvement of memory deficits is not easily determined. There is some evidence that specific rehabilitation strategies result in improvement of memory performance. The primary focus of intervention has been on environmental compensation including mnemonic strategies, rehearsal and repetition strategies, and multimodal cueing, and the use of tools such as planners, calendars, or charts. There is considerable need for further research examining the efficacy of specific intervention strategies on various memory functions in children and adolescents.

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Shy Children

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Synonyms

Bashfulness; Behavioral inhibition; Reticence; Social withdrawal; Timidity

Definition

Shyness in children is a personality trait and a form of social withdrawal. Shy children exhibit wariness and anxiety when presented with novel social encounters and they show self-preoccupation when they perceive social evaluation [7, 18]. Shyness can vary in intensity from mild social awkwardness to extreme ▶social phobia [11]. Manifestations of shyness occur at the physiological, behavioral, and cognitive levels. The origins of shyness are multiply determined, and they result from a complex interplay between biology, genes, and environment [19].

Description

The biological origins of shyness appear to be linked to dysregulation of the fear system [18]. Children who become distressed and subdued when presented with novel stimuli are thought to have a lower threshold for arousal in the forebrain area, especially in the central nucleus of the amygdala. The amygdala plays an important role in fear responses. Shy children show electroencephalogram (EEG) response patterns indicative of greater right frontal brain activity. Other biological features found in shy children are elevated morning basal cortisol levels, increased heart rate acceleration in response to mild stress, and exaggerated startle responses [7].

There is a strong conceptual overlap between shyness and behavioral inhibition, a broader term used to describe a biologically based temperament trait [7]. Behaviorally inhibited children exhibit caution and wariness in unfamiliar social and nonsocial situations, whereas uninhibited children are likely to be bold and sociable. Differences between these inhibited and uninhibited children are thought to reflect variation in excitability of the amygdala and its projections to the ventral striatum, hypothalamus, cingulate, central gray matter, and medulla [13]. It is estimated that approximately 10–15% of children may be described as behaviorally inhibited.

Several other interesting biological factors are linked to shyness, such as blue eye color, blond hair, pale skin, and allergies (especially hay fever; [11]). In addition, prenatal factors also have an impact. It has been found that women who are exposed to short day length during pregnancy (especially during the midpoint of pregnancy) are more likely to have shy children. The hormone melatonin has been implicated in the link between day length during pregnancy and shyness. During the winter months when there are fewer daylight hours, the body produces higher levels of melatonin. This melatonin passes through the placenta to the developing fetal brain, where it may contribute to the development of the highly reactive temperament of shy children [9].

Shyness also shows evidence of genetic links and is considered to be the personality trait with the strongest genetic component. Shy children are likely to have at least one shy parent, or they may have other shy family members. It is speculated that genes that code for serotonin transportation likely play an important role in regulation of some components of the fear system associated with shyness. Serotonin is a major neurotransmitter that has been linked to anxiety and withdrawal [20]. It has been suggested that some shy individuals have a genetic polymorphism that results in reduced efficiency of the transportation of serotonin. Interestingly, it has been found that children who exhibit higher levels of shyness or who have one or two copies of the short allele of the serotonin transporter promoter gene show some impairment in their ability to read some facial emotions. Specifically these children have a hard time deciphering neutral and angry faces [2].

While considerable research has focused on the links between shyness and activation of the fear response region of the brain (i.e., the amygdala), less research has considered the extent to which shy individuals may show greater brain activation in areas that govern more positive emotions. Recent research found that when shy, behaviorally inhibited adolescents played games that involved winning or losing money, they showed greater activity in the striatum, the brain region associated with reward, than did adolescents who were behaviorally non-inhibited [10]. The results of this research suggest that shy children may have a greater sensitivity to a variety of stimuli, not just frightening stimuli, but rewarding stimuli, as well.

Behaviorally, among younger children shyness is manifested primarily as fear and nervousness in encounters with new people and new situations [5]. For older children, embarrassment and self-consciousness are manifestations of shyness. In free play situations with their peers, shy children tend to engage in onlooker behaviors or to remain unoccupied in both novel and familiar settings [16]. Shy children tend to withdraw from social interactions and they rarely initiate contact with potential playmates. Shy individuals tend to minimize conversation and avoid firm eye contact [14].

Self-defeating thoughts are a cognitive manifestation of shyness. These self-defeating thoughts are likely due to a fear of rejection [14]. It has been suggested that shy children may be caught in an approach-avoidance conflict. They have a desire to interact with others, but they are hesitant to do so because of a fear of adverse outcomes such as negative evaluation [14]. Shy individuals are likely to have negative biases in their self concept, such as feeling inadequate or unattractive [11].

Not all shyness is evident during infancy, and so it is important to make the distinction between early and later-developing shyness. Early emerging shyness, which typically appears during the first year of life, is described as fearful shyness. This type of shyness shows a strong genetic component, and is associated with the temperamental characteristics of wariness and emotionality. Children who show behavioral inhibition in novel social situations may be described as exhibiting fearful shyness. Beginning in middle childhood, self-conscious shyness may develop, and it is characterized by inhibition due to social-evaluative concerns [15]. It first appears around age 4 or 5, and it coincides with the child's development of a cognitive sense of self. Self-conscious shyness increases in intensity around age 8 as children begin to engage in more social comparison with their peers. Self-conscious shyness reaches a peak between the ages of 14 and 17, as the adolescent deals with imaginary audience and identity issues.

While the origins of shyness in some individuals are evident in manifestations of biologically-based behavioral inhibition in infancy, not all behaviorally inhibited infants and toddlers go on to develop shyness in childhood [14]. This suggests that biology and genetics alone are not the sole contributors to shyness. Indeed, most researchers agree that an interaction between biological and environmental factors contributes to the development of shyness [19]. Consequently, in addition to the biological factors already discussed, it is important to consider environmental factors that may contribute to shyness.

Overprotective parenting has been linked to childhood shyness [6]. Overprotective parents tend to restrict and direct their children's activities, and they discourage independence. As a result, an already temperamentally shy child may not develop important coping strategies, which may further reinforce their social wariness and shyness. Other factors within families that may contribute to shyness are frequent parental criticism, high parental control with little warmth, and chaotic family interactions [12]. Distant and rejecting parents tend to have shy and socially withdrawn children [19].

Peer relationships can also contribute to shyness. Shy and socially withdrawn behavior is increasingly perceived negatively by peers as children age. Shy and socially withdrawn children generally do not experience peer rejection in early childhood, but by mid-to-late childhood and early adolescence, many shy, socially withdrawn children experience peer rejection and may become the targets of peer victimization [17]. Peer rejection during childhood and adolescence and feelings of incompetence in comparison to peers can further exacerbate shyness.

Childhood shyness is associated with a number of negative outcomes. From middle childhood through adolescence, shyness is increasingly related to internalizing problems such as loneliness, depression, and social anxiety. Shy children may exhibit deficits in social competence and self-esteem, and they may experience peer rejection [5]. Additionally, early childhood shyness is a risk factor for later developing anxiety disorders [6], especially social phobia [16]. The negative trajectory worsens over time. That is, in middle and late childhood, social withdrawal increasingly is associated with peer rejection, loneliness, depressive symptoms, and negative self views [16].

Some research has examined long-term outcomes associated with childhood shyness through follow-up studies into the adulthood years. Long-term research on a 1920s birth cohort found that shy males married, established careers, and had children later than non-shy males. In contrast, shy women were more likely than their non-shy peers to follow a conventional pattern of marriage, childbearing, and homemaking [4]. Childhood shyness was not associated with pathological or extreme outcomes for either men or women. Similarly, a more recent long-term study found that childhood inhibition was associated with a delay in establishing a first stable career and romantic partnership, and finding a first full-time job at age 23 for both men and women. With regard to emotional consequences of inhibition, it is notable that only the most extremely inhibited showed internalizing problems at age 23 [1]. The researchers concluded that inhibited children grow up into reserved, cautious adults with minimal evidence of internalizing problems.

While it is important to acknowledge the challenges and risks associated with shyness, it is equally important to recognize that not all shy children experience negative outcomes [5]. Interestingly, language ability can serve as a protective factor for shy children. Verbal IQ, expressive vocabulary, and pragmatic language ability all facilitate social interactions for shy children, reducing their risk for negative outcomes [5].

Another factor that appears to make a difference in the outcomes for shy children is gender. Whereas shyness in girls is more likely to be rewarded and accepted by parents, being shy is especially problematic for boys in school. Shy boys in preschool have more behavior problems and are more likely to experience peer exclusion than are shy girls [5]. Throughout childhood and adolescence, shy boys continue to have more adjustment difficulties than girls do, such as more loneliness, poorer social skills, and lower self-esteem [5]. It has been suggested that cultural values play a role here, where there is greater social acceptance of shyness for girls than for boys in Western culture.

Interestingly, the role of culture can also serve to be protective factor for the shy individual. Although shyness is generally viewed as an undesirable personality characteristic in the United States, that is not the case in all cultures. For example, in the People's Republic of China, shy, reserved behavior is encouraged and accepted by mothers, teachers, and peers, and it is linked to social competence, peer acceptance, and academic success [16].

Just as family and peer factors can contribute to the risks of shyness, they, too, can serve as protective factors. Specifically, the maternal warmth, sensitivity, and supportiveness characteristic of an authoritative parenting style can help shy children develop social skills [6]. Additionally, having a high quality friendship is protective [5]. Such friendships may help provide social confidence to the child, serving as a buffer against negative emotional consequences of shyness [14]. Furthermore, children who have a closer relationship with their teacher are less likely to experience the negative outcomes associated with shyness, such as peer exclusion and rejection [5].

It is also important to recognize the positive characteristics associated with shyness. Focusing only on the problems associated with shyness can result in the view that shyness is necessarily detrimental. News stories about the use of selective serotonin re-uptake inhibitors (SSRI) or even oxytocin nasal sprays to treat shyness may communicate the message that shyness is pathological and medication is a quick fix and sure cure [20].

A more optimistic view acknowledges that some shyness attributes may be advantageous. For example, adults and children who are shy are often non-impulsive and good listeners [20]. Shy individuals are often high in empathy and sensitivity, which promotes compassion for others [11]. As noted earlier, shy children appear to exhibit increased activity in the reward system of the brain. It is quite possible, then, that shy children experience positive emotions and rewards more strongly, which may motivate the shy child to succeed.

Several intervention approaches are available to help shy children. For example, peer pairing gives withdrawn children the opportunity to participate in activities with a non-withdrawn peer, so that the more sociable peer serves as a role model, provides positive reinforcement, and increases confidence [15]. Social skills training also has been used to intervene with shy children. In social skills training, children learn and practice skills that help facilitate social interactions. Social skills training has been found to have moderate effects in increasing social interactions for shy children [15].

Another way to help shy children is to provide them with opportunities for social interaction that are related to their skills and interests. Participating in these activities expands shy children's social interactions, which in turn may enhance their communication skills and reduce social awkwardness. Activities such as group sports, acting, and dancing classes in a supportive environment can be helpful to shy children [12]. Research has found that shy children who participated in sports showed a significant decrease in social anxiety over the span of 1 year [8]. It is important to target activity participation to the child's skills and interests to maximize the likelihood that the child will have experiences of success [14].

Ultimately, parents need to adapt their parenting behavior to fit the temperamental needs of their shy child. By being patient, gradually introducing the child to new experiences, and recognizing which social experiences are a good fit for the child parents can help their shy child to achieve positive developmental outcomes.

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Sibling Competition

►Sibling Rivalry

Sibling Jealousy

►Sibling Rivalry

Sibling Order

►Birth Order

Sibling Relationships

►Relationships

Sibling Rivalry

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Synonyms

Cain complex; Jealousy complex; Sibling competition; Sibling jealousy

Definition

Sibling rivalry is a type of competition among brothers and sisters, for the love, affection, and attention of one or both parents or for other recognition or gain.

Description

Sibling rivalry often starts right after the birth of the second child, and usually continues throughout childhood and can be very frustrating and stressful to parents. It has been found that feelings of rivalry diminish in adulthood [7].

Sibling rivalry is manifested in the form of verbal or physical aggression, frustration, persistent demands for attention, or as a regressive phenomenon. Older siblings may feel lonely when the younger sibling is born and may indirectly suggest that they do not like the existence of their newborn brother or sister. Others may display frustration or demand attention when the newborn is picked up or provided more attention. Some others may hit, kick, and punch their younger sibling. Regressive behaviors such as bedwetting, thumb sucking, refusal to go to bed, insisting to be carried, and talking like babies occurs very commonly [6]. Conversely, younger siblings' feelings of jealousy may manifest as a result of the older sibling starting school before them, parents allowing the older sibling to stay up late, and having to use the older sibling's clothes and books [6].

Relevance to Childhood Development

Theories Explaining Sibling Rivalry

Different processes in sibling relationships have been identified that may explain the effect that siblings have on each other. Each child competes to define himself/herself as an individual, a process that has been described as sibling identification [1]. As they discover who they are, they try to find their own talents, activities, and interests. On the other hand, sibling deidentification has been proposed as a process whereby siblings try to distinguish themselves from their brothers and sisters and develop different

qualities and interests in an effort to avoid direct competition for resources and establish their own role and identity within the family [10]. Psychologists who support the psychoanalytic viewpoint propose that deidentification is a defense against sibling rivalry, a Cain complex [9], just as identification is regarded as a defense against the Oedipus complex.

Austrian physician Alfred Adler theorized that when a young child, initially the focus of attention, is replaced in the mother's affections by a newly arrived infant, then "dethronement" occurs. Thus Adler conceived sibling rivalry as competition between brothers or sisters for parental approval.

Factors Leading to Sibling Rivalry

Children's developmental stages affect how well they can share parent attention and get along with their siblings. Toddlers may be at an age when they are learning to assert themselves and may not like to share their toys with anyone. They may react aggressively if their brother or sister picks up their toy. In middle childhood, children often become the "fairness police," so they might not understand why siblings of other ages are treated differently. Teenagers, on the other hand, are developing a sense of individuality and independence, and might resent helping with household responsibilities, taking care of younger siblings, or even having to spend time together. All of these differences can influence the way children interact with one another.

Additionally, the emergence of sibling rivalry may depend on the temperament of the child. Specifically, young children's angry temperament can significantly predict how these young children express their jealousy feelings [11]. Furthermore, the age of the child may also determine how the child may cope with the feelings of sibling jealousy. Volling et al. [11] found that older children's understanding of emotional affect significantly predicted their behavior towards their younger sibling. Thus sibling rivalry may be less common among children over the age of 8 years. They may be better at perspective taking and thus understand why their parents are providing more attention to their younger sibling. Sibling rivalry is more common in children between the ages of 2 and 4 years [3]. Additionally, the smaller the age difference between children, the more likely sibling rivalry will occur [5].

Research has found that differential treatment (i.e., less warmth and affection, more coercion by parents) of one sibling by parents leads a child to act in an aggressive, unaffectionate and avoidant manner towards their sibling [4]. This differential treatment may also be seen in families with children with special needs. Specifically, since the child with special needs may need more attention, the other sibling may feel isolated and may develop feelings of rivalry.

Clinical Significance of Sibling Rivalry

Patterson [8] considers sibling relationships as a "training ground" for childhood aggression. Sibling rivalry, if handled properly, can help children learn social and cognitive skills important for child development [6]. Cole, Zahn-Waxler, and Smith [2] suggested that those children who interact with a jealous sibling, who is more likely to instigate conflict, may be at a high risk for development of emotional regulation disorders.

Management of Sibling Rivalry

Sibling rivalry may be minimized by preparing the child for the new baby. Involving the child in the preparations for the new baby may help him/her feel important. Providing verbal reassurance to the child that the parents will continue to love him/her after the baby arrives will address any insecurity that the child may experience. Verbal praise for caring for the baby will help the child feel like a team member in caring for the new-born child. Additionally, parents should emphasize the role of each individual within the family. Parents should avoid comparison with siblings about their intelligence, physical appearance, and achievements. Above all, parents themselves should model problem-solving skills during conflict resolution within the marital as well as family relationships [11].

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Sickle Beta-Plus Thalassemia

►Sickle Cell Disease

Sickle Beta-Zero Thalassemia

►Sickle Cell Disease

Sickle Cell Anemia (SS)

►Sickle Cell Disease

Sickle Cell Disease

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Synonyms

Sickle beta-plus thalassemia; Sickle beta-zero thalassemia; Sickle cell anemia (SS); Sickle-hemoglobin C disease (SC)

Definition

Sickle Cell Disease is a genetic blood disease involving the red blood cells that produce the hemoglobins that are sickle shaped and can cause problems throughout the body. The symptoms of the disease may cause death or serious damage to vital organs.

Description

Hemoglobin carries oxygen from the lungs into the body and transports it to the organs, muscles, and tissues. Normal hemoglobin is called HbA. Hemoglobin S are red blood cells that are sickle-shaped that must pass through the blood vessels and may block the passageways and damage the tissues.

Relevance to Childhood Development

Children who have Sickle Cell disease need to make sure that the school understands the problems that they may have. Some children may have bruises on their bodies that have been mistaken for abuse. The most important consideration is for the child to be adequately hydrated and not over fatigued. Understanding the disease and watching for signs that may cause painful episodes is important. Children with Sickle Cell may experience severe pain in any part of the body due to sickling of the cells. There have been cases of people with this disease suffering heat exhaustion, dehydration, leg pain, joint pain, stomach pain, strokes, splenic infarction, stroke, and heart attacks. Diet is important and parents need to make sure the child is eating a well balanced diet. The child's immune system may be reduced which may cause more childhood illnesses. Children may also have swelling of the hands and feet.

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Sickle Cell Trait

►Sickle Trait

Sickle Trait

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Synonyms

Sickle cell trait

Definition

Sickle cell trait or sickle trait is also known as hemoglobin genotype AS. Hemoglobin is the oxygen carrying protein in red blood cells. It carries oxygen from the lungs into the body and transports it to the organs, muscles, and tissues. Normal hemoglobin is called HbA. If one parent has a mutation of their hemoglobin gene and passes it on, the child will carry the defective gene, in this case, the HbS gene. In sickle trait, the individual has both HbA and HbS in about equal amounts in all red blood cells. These cells have the potential to change from round to sickle shaped red blood cells under certain conditions although they usually do not [1].

Description

Sickle cell trait needs to be understood because of the potential problems that may exist in some individuals with this genetic disorder. Most persons with sickle trait have few, if any, problems from it and are often unaware of having any abnormality. However, some persons with sickle cell trait may experience severe pain in any part of the body due to sickling of the cells. There have been rare cases of people with this disease suffering heat exhaustion, dehydration, leg pain, strokes, and splenic infarction. Some women with the trait have increased urinary infections. Hyphema or bleeding in the anterior chamber of the eye between the iris and the cornea is another problem associated with sickle cell trait. Patients with sickle cell trait have a higher incidence of gross hematuria (blood in the urine) than patients with sickle cell disease. Gross hematuria occurs from bleeding directly beneath the renal pelvic epithelium or as a consequence of papillary necrosis. Renal medullary carcinoma is a rare type of cancer that principally affects patients with sickle cell trait. A possible lethal effect of sickle cell trait is unexpected exercise-related death. A person with the trait should use caution when exercising to the limit of endurance and should take care by warming up slowly when playing sports or engaging in rigorous activity and making sure not to become overheated [2].

Relevance to Childhood Development

Although sickle cell trait originated in Africa, it has been found throughout the world among people of Greek, Italian, Indian, Hispanic and occasionally Caucasian origin. The majority of those with sickle cell trait are of African or Hispanic descent. Those from Caucasian origins tend to have more problems associated with this genetic disorder. Most children in the US are being tested at birth for this condition [3]. When a child is found to have the trait, the parent needs to be aware that most of the time children who have the trait will not have any problems, but the child might feel more pain than children without the trait [4]. Also hydration is important when the child is involved in any kind of activity [2].

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Sickle-Hemoglobin C Disease (SC)

►Sickle Cell Disease

Sigma Score

►Standard Scores

Signal

►Gestures

Simian Crease

►Single transverse palmer crease

Simian Line

►Single transverse palmer crease

Similar Scales Include: Hamilton Rating Scale for Depression (HRSD)

►Beck Depression Inventory

Simplified Habit Reversal

►Habit Reversal

Simultaneous Bilingualism

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Definition

The development of fluency in two languages at the same time.

Description

Simultaneous bilingualism is typically the result of prolonged exposure to two languages from birth. This may result, for example, from one parent or primary caregiver speaking to a child in one language and another parent or primary caregiver speaking to the child in another language. In contrast, sequential or consecutive bilingualism is the development of fluency in a second language after fluency in a first language has been reached.

Research has shown that very young children who have developed simultaneous bilingualism are able to discriminate and switch between the two languages as appropriate to the social context. Researchers have also found that having two well developed languages is associated with increased metalinguistic awareness, communicative sensitivity, and divergent thinking skills [1].

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Single Palmer Crease

►Single Transverse Palmer Crease

Single Parent Families

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Synonyms

Father only families; Lone/single parent/caregiver families; Mother only families

Definition

Single parent families are comprised of a parent/caregiver and one or more dependent children without the presence and support of a spouse or adult partner who is sharing the responsibility of parenting.

Description

Overview

During the past several decades, the number of "traditional" two-parent families has decreased while the number of single parent families has increased. For example, while only about 11% of children lived in single parent families in 1970, census data from 2000 indicate that 28% of children lived in single parent families. More recently, however, these increases have leveled off with recent rates having declined from 29% in 1997 to a slightly lower rate of 27% in 2001.

Reasons cited for single parent composition in families have varied during different decades. Specifically, death of a spouse was the most commonly cited reason for single parent families in the mid-twentieth century. In contrast, most of the rise in single parent families during the 1960s and 1970s was attributed to rising divorce rates, while increased rates during the 1980s and 1990s were due to out-of-wedlock births. The primary reason for single parent families in the early 2000s was that more and more single parents never married. Recent census data indicate that approximately one third of current births occur to unmarried women, while one fourth of children will live with a single parent. It is notable that although it has become more common for two non-married adult partners to be present in the household, the United States

Census Bureau still counts them as single parent families. Another exception that is counted as single parent families even though two married adults live in the house is military families in which one of the married partners is on extended deployment.

Because the presence of single parent families in the past was often due to death of a spouse, resulting data revealed approximately the same number of single father and single mother families [6]. Today, however, this ratio is quite different with single-parent families headed by the mother with her biological children considered to be the most common type of arrangement. In fact, data from the 2002 Census reveal that 23% of all children lived with their single mother. Although a less common arrangement, the percentage of single parent households led by a father has increased from approximately 1% in 1970 to about 5% in 2002. In 2006, there were 12.9 million single parent families, 10.4 million of which were headed by a single mother and the remaining 2.5 million that were headed by a single father [16]. In contrast to single parent mothers, single parent fathers are more likely to be divorced than never married and more likely to be sharing a home with an adult to whom they are not married.

Additional reasons for the creation of single parent families include other situations that result in the loss of a relationship (e.g., separation, abandonment by a parent) or personal choice (adoption, use of reproductive technology, or becoming or staying pregnant without a significant other) [4]. Adoption rates by single-parents also have demonstrated trend increases. For example, while only 0.5–4% of adoptive parents were single in 1970, the rate jumped to between 8 and 34% in the 1980s. This rate is likely impacted by a segment of women, often with established careers, who are choosing to have or adopt children as single mothers [12].

In the United States, there is a clear discrepancy among the percentage of single parent families within various racial/ethnic groups. For example, the proportion of single parent families by race/ethnicity is as follows: White, 22%; Black; 57%; and Hispanic, 33%.

One of the biggest problems faced by single parent families is economic hardship. Since most single parent families are headed by a female, women are disproportionately represented among the poor. Two thirds of the poor population in the United States consists of families of single mothers and their children. Reports from 1999 show that close to half (42%) of youth living in single mother families were poor compared to 18% of children in single father families and 8% of children in two-parent families [13]. The economic impact also disproportionately affects families from different racial/ethnic backgrounds. The largest group of single mother families living below the poverty line in the United States is Hispanic (51%) followed by African–American single mother families (43%) and White single mother families (31%) [13].

Impact/Stressors on Parents

Due to the fact that a single parent is responsible for all aspects of family functioning without the support of a spouse, he or she can feel overwhelmed and face a multitude of stressors [15]. In addition to being low-income, survey data suggest that many single parent families have lower parental education, a higher degree of financial difficulty, lower participation in volunteer and religious activities, and more frequent arguments between parent and child [17].

Single parent families are considered at-risk for having poorer caregiving practices compared to mother–father families. This may partly be due to the lack of resources to adequately care for their children or the stress associated with being a single parent [3]. As children get older, mothers from single parent families appear to have greater difficulty coping with behavioral issues. For example, as children develop from childhood to young adulthood, mothers in general report fewer complaints about their children's oppositional behavior. However, the decrease in these complaints happens more slowly in low socioeconomic and single parent mothers [7]. Finally, non-mother/father families also may experience higher levels of social stress and less supportive relationships with family members [1].

Impact on Youth

The experience of living in a single parent family has been linked to a number of potential youth outcomes. For example, it has been suggested that family structure is associated with children's mental health which is impacted by factors including socioeconomic status, family processes, and social stress. Research findings also reveal that young adults who grew up in single parent and step-families reported more symptoms of depression than young adults in mother–father families [1].

Children's physical health also has been demonstrated to be compromised in single parent families as compared to step-families and two-parent families. In one sample, 15.2% of children in single parent families had limiting health conditions compared to 13.6% in step-families and 8.9% in two-parent families. The same pattern also is found for behavioral well-being [17].

It has been suggested that children in various family structures receive differing amounts of time with their mothers. For example, results from a study of single

mothers revealed that these mothers only spend approximately 83–90% of the time that married mothers spend with their children. This disparity is most likely due to the fact that single mothers have less time to spend with their children given that they bear all of the parenting responsibilities in the family. However, when employment, level of education, maternal age, and age of children are held constant, single mothers spend at least as much time with their children as their married mother counterparts [14].

The research investigating potential youth outcomes within single parent families related to the parent often having to work during "nonstandard" work hours is decidedly mixed. For example, it has been suggested that nonstandard working schedules may negatively impact parents' ability to monitor their children and the closeness of the parent–child relationship. In contrast, findings from another study indicated that among single parents working nontraditional hours, the probability of parental monitoring after school is higher. On the other hand, the possibility of the parent being absent from important activities is higher as is the likelihood of the child feeling less close to his/her mother. Furthermore, in families where the single mothers are working a rotating shift there is a higher chance of adolescents participating in multiple forms of delinquent activities [11].

Due to the lack of a second parental figure, children in single parent families may have greater responsibilities in their families that include helping with the day-to-day functioning of the family. For instance, it has been suggested that children in single parent families are given the responsibility to be more involved in the decision-making processes of the family. This increased responsibility may take the form of having greater involvement in determining what purchases are made for themselves and for the family as a whole [8].

Much of the negative effects on children in single parent families are related to financial hardship. As a result, many families rely on child support payments as a supplemental form of income to help support the family. Unfortunately, many single parent families do not consistently receive child support payments in full. The discrepancy between expected and actual child support payments has been reported to predict child health outcomes, including school functioning, conduct issues, mental health problems, and participation in activities [5].

Coping and Strengths of Single Parent Families

Low-income, single parent families have reported that support from immediate family members is the most important resiliency factor in helping them to face life challenges [10]. Support from extended, "multigenerational" family members also has been reported as becoming more important with the rise in the number of single parent families [2]. Other important sources of support include friends, a style of positively approaching problems, and religious/spiritual support [10].

Despite the multitude of challenges faced by single parent families, it is important to recognize the strengths that help them to cope with stressors. For example, it has been reported that the number one strength of single parent families is having a sense of "cohesion or emotional closeness" that developed as a result of enduring family stressors. Other strengths reported include "pride/optimism," "togetherness," "open communication," and "teamwork" [15]. Furthermore, these strengths are more similar than different from those reported by two-parent families. Single parent families also have reported engaging in a number of on-going family rituals (connection, spiritual, love, recreational, celebration, and evolving) to help maintain family closeness and emphasize the family's values [15]. These research findings challenge the negative perspective that is often directed towards these families [9].

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Single Subject Research Design

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Synonyms

Single-case research design; Single-participant experimental design; Time-series design

Definition

Single subject research design refers to a unique type of research methodology that facilitates intervention evaluation through an individual case.

Description

Single subject research design is a type of research methodology characterized by repeated assessment of a particular phenomenon (often a behavior) over time and is generally used to evaluate interventions [2]. Repeated measurement across time differentiates single subject research design from case studies and group designs, as it facilitates the examination of client change in response to an intervention. Although the use of single subject research design has generally been limited to research, it is also appropriate and useful in applied practice.

Single subject research designs differ in structure and purpose and typically fall into one of three categories: within-series designs, between-series designs and combined-series designs [1-6]. Within-series designs are characterized by the evaluation of data points across time and within phases/conditions (e.g., treatment vs. no-treatment conditions) [2]. Specific types of within-series designs include the simple phase-change design, the changing criterion design, parametric, and periodic interventions design. The simple phase-change design and the changing criterion design are the most common within-series designs. Parametric and periodic interventions designs are used less frequently. Between-series designs allow for the comparison of two or more conditions (i.e., baseline compared to intervention or two or more interventions) [2]. The alternating-interventions design and simultaneous-interventions design are between-series designs. As the name suggests, combined-series designs facilitate evaluation both within and between series and include the multiple baseline design, the crossover design, and the constant-series control design. Although certain studies are amenable to the crossover and constant-series control designs, they are used less frequently that the multiple baseline design – the most common type of combined-series design. The multiple baseline design's structure is a simple phase-change design in which the intervention phase is repeated across participants, settings, or behaviors. Ideally, the intervention phase is replicated across three or more different participants, settings, or behaviors, and interventions are implemented sequentially after changes are noted in the first implementation. For example, if disruptive behavior during unstructured periods of time at school is the behavior of concern, and the intervention is a positive behavior support plan individualized to the student's particular needs, the plan could be implemented first during hallway transitions, and once improvements are observed, the plan could then be implemented during lunch, and so on.

Data from single subject research designs have traditionally been analyzed through visual inspection, including the assessment of level, trend, and variability

[1-6]. However, certain nonparametric statistical tests may also be appropriate for the analysis of data collected in single subject research designs. Across all types of single subject research designs, internal validity is established by replication, and threats to internal validity can be reduced by repeated assessment, continued assessment of client variability, design flexibility, and randomization.

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Single Transverse Palmer Crease

Synonyms

Simian crease; Simian line; Single palmer crease

Definition

A single crease that extends across the palm of a human hand caused by a fusion of two palmer creases (flexion creases)

Description

Palmer creases develop by the 12th week of gestation. A single transverse palmer crease appears in 1 out of 30 normal people. It is more commonly found in males, and can sometimes indicate a developmental problem, such as Down syndrome, Aarskog syndrome, fetal alcohol syndrome, Klinefelter syndrome, gonadal dysgenesis, cri du chat syndrome, pseudohypoparathyroidism, Turner syndrome, Rubella syndrome, Cohen syndrome, and trisomy 13.

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Single Word Utterance

▶Holophrases

Single-Case Research Design

▶Single Subject Research Design

Single-Participant Experimental Design

▶Single Subject Research Design

Sinistral

▶Left Handedness

Skin Inflammation

▶Acne

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Life Dates

1904–1990

Introduction

Skinner is considered to be the most influential psychologist of the twentieth century. His work has had dramatic impact on the fields of applied behavior analysis, the experimental analysis of behavior, education, and the analysis of verbal behavior.

Educational Information

Skinner graduated from Hamilton College with a B.A. degree in literature in 1926 with the intention of becoming a writer. After abandoning this career path, he enrolled in Harvard and earned a Ph.D. in psychology in 1931. He remained at Harvard until 1936 when he moved to the University of Minnesota. His next stop was at Indiana University where he served as department chair from 1945–1948. He then returned to Harvard in 1948 where he remained until his retirement.

Accomplishments

Quite simply, Skinner's accomplishments are far too numerous to mention within the confines of a short biography. Some of his more noted accomplishments, however, will be considered. First and foremost, Skinner is known as the father of radical behaviorism, which is the theory that behavior is determined by its consequences. He began describing his work in a 1938 book titled *The Behavior of Organisms*. His philosophy of behaviorism was more clearly explained in his 1953 book, *Science and Human Behavior*. A number of books, approximately 18, followed his treatise on the behavioral philosophy of human behavior. One of his books, *Walden II*, published in 1945, described his ideal utopian society that was built on the basic principles of behaviorism. *Beyond Freedom and Dignity*, published in 1971, described how understanding the scientific principles that guide human behavior could lead to an improved society; one without punishment and coercion. Many of Skinner's political and social views were expressed in these two novels which earned him a great deal of criticism and cynicism from his detractors. Skinner also published approximately 180 articles on topics ranging from the experimental analysis of behavior to the role of behavioral psychology in education [1].

Although a prolific author, Skinner invented a number of devices that helped to test his theories and that engendered both praise and criticism. Some of these devices included the cumulative recorder (for studying the effects of different schedules of reinforcement), the air crib (also called the "baby tender"), the operant conditioning chamber, the teaching machine, the pigeon guided missile system, and a thinking aid to help with writing [2].

He received a number of awards throughout this career, with some of the most notable being the Distinguished Scientific Contribution Award from the American Psychological Association in 1958, National Medal of Science in 1968, the Gold Medal Award from the American Psychological Association in 1971, the International Award from the Joseph P. Kennedy Foundation for Mental Retardation in 1971, the Humanist of the Year Award in 1972 from the American Humanist Society, the Award for Distinguished Contributions to Educational Research and Development from the American Educational Research Association in 1978, and the Citation for Outstanding Lifetime Contribution to Psychology from the American Psychological Association in 1990 [3].

One of Skinner's "accomplishments" was that he was roundly criticized by many who either did not understand his theories or who disagreed with him on philosophical grounds. Noam Chomsky, for instance, is a noted cognitivist who thought that Skinner's description of verbal behavior was incomplete, unscientific, and had little merit for the world beyond Skinner's laboratory. The ensuing debates between his detractors and supporters added much to the growth of behavioral psychology, and psychology in general, and still continue today [4].

Contributions

Skinner's contributions were profound in both psychology and education. His work gave rise to both the experimental and applied analysis of behavior as well as to the growth of psychology as a legitimate science. His behavioral principles influenced the treatment and care given to individuals with mental retardation and other developmental disabilities. Skinner's work directly influenced other psychologists who worked to improve education, most notably Fred S. Keller and Ogden Lindsley. Keller, along with Skinner, pioneered the Programmed System of Instruction which is used in various forms today. Lindsley based his Precision Teaching on Skinner's behavioral principles. Today, some of the major journals in psychology owe their existence to Skinner (e.g., *Journal of Applied Behavior Analysis*, *Journal of Experimental Analysis of Behavior*, *Analysis of Verbal Behavior*, *The Behavior Analyst*, to name a few). In numerous surveys, the most eminent psychologists cited Skinner and his work as their most dominant influence. Skinner is one of few psychologists whose work and influence endure far past his death.

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Skinner's Behaviorism

►Radical Behaviorism

Sleep

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Synonyms

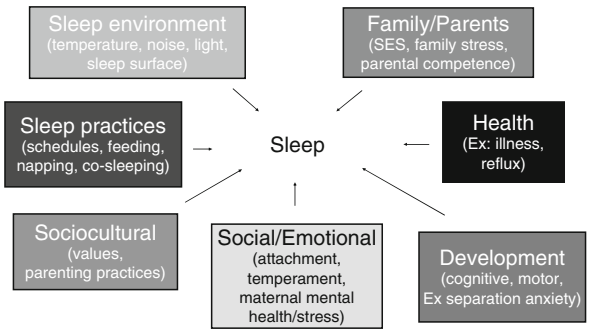
Normal sleep; Sleep architecture; Sleep stages; Sleep structure

Definition

Sleep is one of a child's primary activities from infancy to adolescence. Sleep in infancy and childhood is often thought of as a passive, inert, or isolated state, but it is actually a very active, physiological state that is influenced by a multitude of factors.

Description

Sleep is significantly influenced by a wide array of behavioral, developmental, health, environmental, social and emotional factors, and characteristics of and sleep practices of both the caregiver and child (see Fig. 1). Sleep is necessary for children to function at their optimal level, and lack of sleep can affect numerous aspects of their growth, health, behavior, and development, as well as overall quality of life.



Sleep. Fig. 1 (Adapted with permission from Jodi Mindell.)

Remarkable changes occur in sleep patterns from infancy to adolescence. In early infancy (0–2 months), the typical sleep requirement is 16–20 h per 24 h period, typically separated a period of wakefulness that ranges from 1–3 h. Sleep periods are evenly distributed between day and night. From 2–12 months of age, the typical sleep requirement is 9–12 h at night, while napping 2–4 hours per day. During this time, as nighttime sleep begins to consolidate, the frequency of daytime naps decreases from four naps to as few as one as the child gets older, each lasting 30 min to 2 h. Night feedings also decrease during this time period, and by the age of 6 months, should no longer be necessary. Between ages 1 and 3 years, the typical sleep requirement is 12–13 h per 24 h period. By age 18 months, most children have progressed from two naps to one. Typically, the morning nap becomes shorter, while the afternoon nap extends in length, until the morning nap is no longer needed. Between ages 3 and 5 years, the typical sleep requirement is 11–12 h per 24 h period. Naps decrease from one to no nap. At age 3, 92% of children still nap. At age 4, 57% of children still nap. By age 5, 27% of children still nap. For school age children between ages 6 and 12, the typical sleep requirement is 10–11 h per 24 h period. Well-rested children should no longer be sleepy during the day. For adolescents between ages 12 and 18, the typical sleep requirement is 9 to 9½ h each night. Alarmingly, most teens report obtaining 7 to 7½ h per night.

Relevance to Childhood Development

Sleep is necessary for children to function optimally. Multiple studies have shown that when children and adolescents do not obtain adequate sleep, whether from sleep restriction or due to presence of a sleep disorder, their physical, emotional, cognitive and social development are affected. Sleep is necessary for adequate cardiovascular, immune, and metabolic functioning and growth hormone production. Children who do not obtain adequate sleep are more likely to be emotionally dysregulated, impulsive, and inattentive, affecting their academic performance and social relationships.

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Sleep Apnea

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Synonyms

Obstructive sleep apnea syndrome; Pediatric obstructive sleep apnea; Sleep disordered breathing

Definition

Childhood obstructive sleep apnea is characterized by repeated episodes of partial or complete upper airway obstruction that occur during sleep that are usually associated with disruption in gas exchange and/or sleep fragmentation.

Description

Introduction

Sleep disordered breathing (SDB) is a spectrum that encompasses primary snoring at the mild end of severity to classic obstructive sleep apnea syndrome (OSAS) at the more severe end. Upper airway resistance and obstructive sleep hypoventilation are part of this spectrum and are felt to be less severe than outright obstructive sleep apnea syndrome. OSAS is characterized by repeated episodes of upper airway resistance along with partial or complete airway obstruction during sleep. These episodes can be associated with ventilation and/or oxygenation disturbances. A degree of sleep fragmentation can be seen with these patients as well.

Sleep disordered breathing can occur in a child of any age ranging from neonates to adolescents. OSAS occurs in approximately 1–3% of the pediatric population. More specifically, OSAS affects up to 3% of children between the ages of 2 and 8 years old.

Pathophysiology

Obstructive sleep apnea syndrome occurs when the upper airway collapses or when the luminal cross section is reduced during inspiration. Collapsibility of the upper airway is a dynamic process that involves multiple factors such as sleep state, anatomy, respiratory drive, and neuromotor tone. The airway of the child is inherently smaller than that of an adult. As a result, size of the pharynx which includes the size of the adenoids and tonsils has long been implicated in pediatric obstructive sleep apnea. It has been shown that the site of upper airway obstruction in children with obstructive sleep apnea is at the level of the tonsils and adenoids. In normal children, it occurs at the level of the soft palate. Tonsils and adenoids increase in size from birth to 12 years of age with maximal growth appearing between the 2 and 7 years of age. However, multiple studies have not shown a strong correlation between increased adenotonsillar size and obstructive sleep apnea. Thus, pediatric obstructive sleep apnea may not be caused by adenotonsillar hypertrophy alone. Obesity can be a contributing factor in OSAS. Adipose tissue within the muscles and soft tissue surrounding the airway can narrow the pharynx. Thus, the likelihood of airway collapse is increased. Children with craniofacial abnormalities are at high risk for OSAS. Examples of conditions associated with craniofacial abnormalities include Down syndrome, achondroplasia, Pierre Robin syndrome, and Aperts' syndrome.

History and Physical Examination

Nightly loud snoring is almost universal with pediatric OSAS. In many patients, the snoring is accompanied by pauses in breathing, choking/gasping for breath, and neck hyperextension. Other associated symptoms can include sweating, restless sleep, and dry mouth. It should be noted that snoring itself is not always an accurate predictor of polysomnographic OSAS. Daytime sleepiness can be a manifestation of pediatric OSAS. However, daytime sleepiness is much more prominent with adult OSA as compared to pediatric OSAS. Physical examination of a child with OSAS is usually normal. However, children may present with adenotonsillar hypertrophy and craniofacial abnormalities which should alert a clinician to the possibility of OSAS. Obesity and failure to thrive can be seen as well. In rare instances, cardiovascular consequences of cor pulmonale and congestive heart failure can be seen in children with OSAS.

Diagnosis

Nocturnal polysomnography (sleep study) is felt to be the gold standard for diagnosis of OSAS. It is the diagnostic test that should be ordered in any child with suspected SDB. The nocturnal polysomnogram should be performed in a pediatric sleep laboratory. Adult oriented laboratories attempt to perform sleep studies in children with limited success. Other diagnostic studies have been looked at to evaluate OSAS which include symptom questionnaires and video/audio recordings. These individual studies have not shown adequate sensitivity or specificity in diagnosing pediatric OSAS.

Treatment

Tonsillectomy and adenoidectomy is first line treatment for pediatric OSAS. It is felt to be curative in approximately 80–85% of children with this diagnosis. However, a percentage of children have symptoms that persist despite adenotonsillectomy especially in children with obesity, craniofacial abnormalities, and cerebral palsy. Continuous positive airway pressure (CPAP) has been shown to be an effective therapy for OSAS in children who have either failed surgical intervention or are not good surgical candidates. Other treatment modalities include weight loss, oral appliances, supplemental oxygen, and tracheostomy.

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Sleep Architecture

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Synonyms

Sleep; Sleep stages; Sleep structure

Definition

Sleep architecture refers to the structure of sleep cycles throughout the night and the five stages of sleep including four stages of non-rapid eye movement (NREM) sleep and the fifth stage, rapid eye movement (REM) sleep.

Description

Sleep architecture allows for the quantification of sleep characteristics in order to promote accurate diagnosis of sleep disturbance or related medical or psychological diagnoses. Some relevant measures of sleep architecture include the following:

Sleep onset latency – the time between initiating sleep behavior (lights out) to onset of first sleep stage
REM latency – the time between sleep onset and occurrence of first REM period
Total sleep time – total time (in minutes) sleeping from lights out to lights on
Sleep efficiency – ratio of time asleep compared to time recording (lights out to lights on)

Measurement of sleep architecture: Sleep architecture is mapped out by the cyclic series of stages achieved during sleep. Multiple sleep cycles are achieved during the night, each lasting approximately 1.5 h. The breakdown of stages within each sleep cycle varies from the initial sleep cycle to later cycles that occur in the early morning hours. Identification of sleep stages is made using nocturnal polysomnography (overnight sleep study), which utilizes EEG data and measurements of muscle tone, eye movements, leg movements, respiratory function and patterns, and heart rate. Sleep architecture is typically depicted in a visual chart called a hypnogram (Fig. 1).

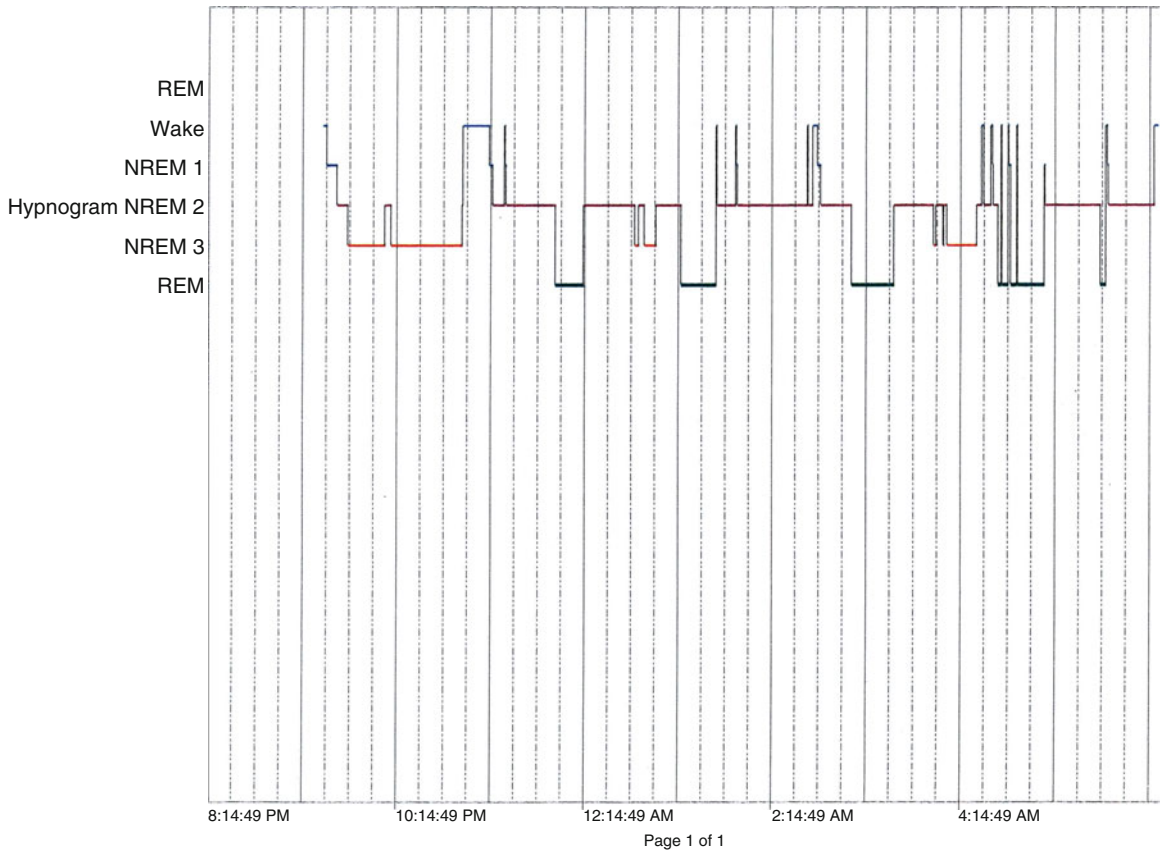
Non-REM sleep: Non-REM sleep is comprised of stages 1–4 of sleep and is characterized by relatively diminished brain activity and maintenance of voluntary motor movements [5, 8].

Stage 1: Stage 1 of sleep is considered "light sleep" and marks the transition from wakefulness to being asleep. Lasting a short period of 1–5 min, stage 1 sleep often involves muscle jerks or twitches and recall of visual images [5, 6, 8].

Stage 2: Stage 2 sleep is identified by the presence of high frequency, rapid bursts of EEG activity called sleep spindles and high amplitude low frequency waves called K-complexes. This stage is also considered initiation of "true" sleep and the initial occurrence of stage 2 lasts 5–25 min [5, 6, 8].

Stage 3/4: Stages 3 and 4 are often considered together and reflect deep sleep. They are identified as containing delta wave, or slow wave EEG activity. It is most difficult to wake people when they are in these stages of sleep. Initial occurrence period of stage 3/4 sleep is approximately 30–45 min and is typically followed by a brief arousal. Length of delta wave sleep decreases as the night progresses in healthy individuals [5, 6, 8].

REM sleep: REM is characterized by dipolar ▶saccadic eye movements, increased central nervous system activity, muscle paralysis (except for breathing and erectile function), and coincides with dreaming. REM typically occurs 70–90 min after sleep onset [6]. Length of REM sleep



Sleep Architecture. Fig. 1 Example of a normal hypnogram from a healthy child.

during each sleep cycle increases as the night progresses [6]. Initial REM periods average approximately 10 min, while REM sleep in the early morning hours may last up to 60 min [5, 6].

Disruptions in sleep architecture: Sleep architecture may be altered by a number of factors, resulting in diminished sleep quality or sleep efficiency and subsequent daytime sleepiness and problems with daytime functioning. Factors that result in disrupted or altered sleep architecture include medical health issues (e.g., seizure disorders, developmental disabilities, pulmonary disorders) [4], substance use (e.g., alcohol, cigarettes, illicit drug use), psychotropic medications, psychopathology (e.g., mood or anxiety disorders, schizophrenia, post-traumatic stress disorders), specific sleep disorders [4, 5], ▶jet-lag [4], temperature [4], or other environmental factors (e.g., household/neighborhood activity, bed-sharing) [1, 4, 5].

Periods of arousal are common throughout the night, and they are typically brief and do not disrupt overall sleep architecture. However, prolonged periods of arousal, or arousal that results in conscious wakefulness, interrupts the sleep cycle and may decrease the total amount of REM or delta wave sleep achieved, which is critical for sleep quality [4, 5, 7].

Health and sleep architecture: Increasingly, evidence for the importance of sleep (length and quality) on our health is being found. Sleep appears to impact various facets of physical health beyond daytime sleepiness and cognitive impairment. Specifically, insufficient sleep may result in dysregulation of immune function, cardiovascular disease, and endocrine functioning [3]. For example, shortened sleep time and fragmented sleep are associated with obesity, weight gain, and difficulties with weight loss. In turn, health problems may alter sleep architecture. Evidence for this with regard to respiratory disorders is widely known [4, 5, 7].

Relevance to Childhood Development

Developmental changes: Neonates and infants do not demonstrate the five stages of matured sleep structure. Instead, they demonstrate two clear sleep states referred to as "quiet" and "active" sleep, the latter reflecting cortical

activity similar to REM. Active sleep in infants comprises approximately 50% of sleep time, and this ratio decreases over the course of childhood such that by adolescence it comprises approximately 25% of sleep time. Slow wave, or delta wave sleep, predominates infancy, peaks in early childhood then declines over the course of development. In fact, minimal stage 3/4 sleep is observed in the geriatric population, which contributes to their complaints of "light" or disrupted sleep. The initial occurrence of delta waves and sleep spindles, marking different nonREM sleep stages, appear in the first year of life, and complete sleep staging is usually present by age 5 [5].

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Sleep Disordered Breathing

►Sleep Apnea

Sleep Disorders

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Synonyms

Nocturnal disorders; Sleep disturbances; Sleep problems

Definition

Sleep disorders are common and result in insufficient amount of sleep and/or sleep of poor quality, which significantly affects daytime functioning and quality of life in children.

Description

The most commonly reported sleep disorders in children are described in detail in the following sections. Obtaining a detailed and accurate history followed by a comprehensive physical exam, including screening for developmental delays and cognitive dysfunction, appears to be a cornerstone for diagnosing pediatric sleep complaints. It is important to involve family members in the clinical interview to understand the potential etiology of sleep disturbances because children and adolescents often do not recognize nocturnal events that can disturb sleep. Developmental history with focus on sleep and wake patterns as well as potential medical illnesses that affect sleep during infancy and childhood can provide clues to the duration and degree of sleep disturbances in the child. Obtaining pertinent family history of sleep disorders is equally important given that certain conditions such as narcolepsy with cataplexy, chronic primary insomnia, restless legs syndrome, obstructive sleep apnea syndrome and advanced-sleep phase syndrome have been shown to be influenced by genetic factors [11].

Insomnia

Insomnia in children is defined as repeated difficulty with sleep initiation, duration, consolidation, or quality that occurs despite age-appropriate time and opportunity for sleep resulting in daytime functional impairment for the child and/or family. Behavioral insomnia of childhood (BIC) typically presents as bedtime refusal or resistance, delayed sleep onset, and/or prolonged night time waking that require parental intervention. BIC is classified into three categories: sleep-onset association type, limit setting type, and combined type. In the sleep-onset association type, children have difficulty initiating sleep independently and associate falling asleep with certain circumstances, such as place (couch or parent's bed), a person's presence (parent), or an activity (feeding from a bottle, being rocked, watching television). These circumstances are required for the child to re-initiate sleep in the middle of the night. In limit-setting type, the child delays bedtime with multiple requests or refusal, while the parent has difficulty setting limits, allowing bedtime to delay. If a child requires certain circumstances to initiate sleep and there are difficulties with parental limit-setting, the diagnosis is combined type.

Etiology of pediatric insomnia is usually multifactorial. Assessment should include screening for presence of concurrent medical, psychiatric and developmental disorders and associated impairments in home and school settings. It is also vital to assess for presence of underlying primary sleep disorders like obstructive sleep apnea and restless legs syndrome as possible etiologies behind a presenting symptom such as insomnia. It is also important to determine whether the difficulties with sleep onset and/or maintenance are due to inappropriate/inconsistent sleep schedules or napping schedules. For example, parents may have expectations of napping that may be outside of a child's developmental need or implement inconsistent or inappropriate naps (e.g., naps closer to bedtime), which lead to difficulty regulating the child's sleep-wake schedule. Eliminating the nap at an inappropriate age can also result in an increase in the child's behavioral difficulties at bedtime rather than helping with earlier sleep onset and/or sleep maintenance. The same issues relate to teenagers, who often have variable sleep schedules, inappropriate napping, later bedtimes, and early school start times. Subjective sleep complaints are common in children with ADHD, major depressive disorder, and anxiety disorders. This is proposed as a bidirectional relationship as unstable emotional states can lead to persistent sleep problems and chronic sleep deprivation can result in disrupted behaviors and mood.

Behavioral interventions are the mainstay of treatment of pediatric insomnia. Behavioral interventions that aim to help children initiate and maintain sleep independently, resulting in increased total sleep time and improved sleep quality, produce both reliable and lasting improvements in bedtime problems and night wakings in infants and young children. Extinction and parent education/prevention have received strongest support after empirical review. Gradual extinction, bedtime fading, positive routines, and scheduled awakenings are also strongly supported as efficacious treatments for young children. For older children and adolescents, behavioral strategies that aim to reduce arousal at bedtime are often recommended. Sleep hygiene education is particularly important. In addition, progressive muscle relaxation, stimulus control and cognitive behavioral therapy techniques such as thought stopping, increasing positive thinking, and journaling "worries" at bedtime are often recommended.

Parasomnias

Parasomnias include dysfunctions related to sleep, sleep stages, and partial arousals from sleep. The most common parasomnias include night terrors, confusional arousals, and sleepwalking and talking. There is no known etiology for parasomnias, but it is believed that they are related to maturation. Evaluation for parasomnias includes the usual time when the episode occurs, description of the behaviors and movements, the ability of the child to remember the episode, the presence of symptoms during wakefulness, and the presence of stereotypical movements during the episode. Parasomnias typically occur in the first third of the night, during which the child is inconsolable or nonresponsive for a short duration of 5–15 min with amnesia for the event the following morning. Parasomnias often increase during periods of sleep deprivation, thus it is also important to evaluate adequate sleep hygiene. The parents should avoid awakening the child since this may increase agitation and prolong the episode. Typical treatment includes reassuring and educating the child and family of the parasomnias, implementation of sleep hygiene measures, extending the sleep time, and implementation of safety measures. Depending on the frequency and severity of the episodes, medication may be given in order to prevent high risk of injury, violent behavior, or significant disruption to the family. Short-acting benzodiazepines such as Klonopin or Serax are the most common medications prescribed. They are used for 3–6 months until the episodes have disappeared. Scheduled awakenings have also been used in order to avoid prescribing medication to the child. This is a behavior modification that involves interrupting the sleep staging by waking the child about a half hour before they are most likely to experience a primary partial arousal parasomnia. This has been shown to be effective in eliminating night terrors, but may be difficult to encourage the parents to implement on a regular basis.

Night terrors are partial arousal parasomnias which are characterized by sudden arousal from slow-wave sleep accompanied by intense fear. These are usually disturbing to parents or other family members, but the child is completely unaware of his or her behavior. Around 3% of children experience night terrors, and the typical age of onset is usually between 4 and 12 years. There is a strong genetic component present in night terrors, and 80–90% of children who experience them have a first-degree relative with the same symptoms. Sleep terrors are usually characterized by a sudden onset. The child looks extremely agitated, frightened, and confused during the episode. Crying, screaming, and extreme physiological arousal are also common. The child is also usually clumsy or flailing, often pushing the parents away or behaving strangely. Diagnostic criteria include complaints of a sudden episode of intense terror during sleep occurring within the first third of the night, partial or total amnesia, onset during stage 3 or 4 of sleep, and the absence of other medical or

sleep disorders that could explain the episode. Confusional arousals are much less extreme, with the child typically sitting up in bed appearing confused or agitated, but not typically leaving the bed.

Sleepwalking is a common partial arousal parasomnia which occurs as a result of becoming caught between sleeping and wakefulness in a partial arousal state. The child's eyes may be open, and he or she may appear confused, dazed, or agitated. The child may also mumble incoherently. Sleepwalkers are also clumsy and often perform strange actions such as urinating in a closet. Occurrence can be either rare or nightly.

Between 15% and 40% of children occasionally sleepwalk while 3–4% experience weekly or nightly episodes. Average age of onset is between 4 and 6 years. Diagnostic criteria include exhibition of ambulation occurring in sleep, onset typically in prepubertal children, difficulty in arousal during the episode and amnesia following the episode, occurrence in the first third of the sleep episode, onset during stage 3 or 4 sleep, and the absence of any medical or other sleep disorders that could account for the symptom.

Safety measures may include using gates, locks on doors or windows, and alarm systems or bells to alert parents. The parents should not try to wake the child, but instead the child should be guided back to his or her bed. Benzodiazepines are also prescribed in severe cases. Scheduled awakenings have also been found to be effective in eliminating sleepwalking behavior and maintaining treatment gains.

Sleep talking, also known as "somniloquy" is a common occurrence during childhood. It includes coherent speech, incoherent mumbling, and utterances during the sleep period. Typically the child does not remember talking during his or her sleep. It usually is of no concern to parents, but occasionally significant outbursts and loud talking can disrupt parents' sleep. Sleep talking may be related to other parasomnias but alone is not associated with pathological states.

Circadian Rhythm Disorders

Circadian rhythm disorders are characterized by normal sleep quantity and quality but at the wrong time of day. The circadian rhythm is the body's "timekeeper," and it greatly affects the time of sleep onset and awakening. During adolescence, the circadian rhythm may be delayed or advanced from the desired hour of sleep or it may be out of phase with normal clock time. This occurs as a result of a combination of genetics and social norms associated with adolescence. Parents of children with circadian rhythm disorders often have the same symptoms or propensity as their child. Also, adolescents begin staying up later in order to chat online, surf the internet, talk on the phone, or hang out with friends. This causes the child to be exposed to light during the wrong time of day, which is right before or during the desired time of sleep. The light from televisions or computer screens is a common way adolescents are exposed to light.

Daytime sleepiness is a frequent result of circadian rhythm disorders. Children commonly suffer from symptoms similar to those of attention deficit hyperactivity disorder (ADHD), depression or behavioral dysregulation, and often sleep during their classes. The distinguishing feature of circadian rhythm disorders is that sleep is normal and daytime sleepiness subsides when the child is able to sleep and wake at his or her own schedule. All people have a circadian rhythm of around 24 h. This is caused to be consistent with clock time by time cues called "zeitgebers." The main example of this is light, but activity schedules, exercise and other environmental factors are included. If an individual fails to follow certain environmental zeitgebers then they can develop either delayed sleep phase syndrome (DSPS) or advanced sleep phase syndrome (ASPS). Some people's sleep phase moves progressively earlier or later and causes them to go in and out of synchrony with the environmental time of sleep. This is called non-24-h sleep-wake disorder. Circadian rhythm disorders occur in at least 10% of children. DSPS is the most prevalent, with a prevalence of 5–10% in adolescents. ASPS and non-24-h circadian rhythm are seen less frequently and occur in adolescents.

Delayed Sleep Phase Syndrome

DSPS involves a significant, persistent, and intractable shift in the sleep-wake schedules which interferes with the environmental demands of the child. The child can present with both academic and behavioral problems. Both getting the child to go to bed and waking the child in the morning are often problems. Children are lest resilient of sleep deprivation, and the delay may cause pathologic symptoms. Children with DSPS may present with problems such as bedtime struggles or difficulty awakening at the desired time, complaints of insomnia at night or excessive sleepiness in the morning, inability to wake up at the desired time, falling asleep at school. The diagnostic criteria include delayed sleep pattern by at least 1 h, an inability to fall asleep at the desired clock time and an inability to awaken spontaneously at the desired time, a presence of 1 month, normal quality and quantity of sleep when allowed to follow own schedule, later sleep on weekends and holidays with less daytime sleepiness, with no other sleep or psychiatric disorder present to cause it.

People with DSPS are referred to as "night owls" and report functioning more efficiently in the evening and at night. This may become a lifestyle for children with DSPS if their identities are found in late night activities such as chat rooms or phone calls. Children with DSPS frequently take naps during class, complain about daytime sleepiness, have poorer academic achievement and a greater number of injuries, and are more emotionally upset than other children. They are also more likely to experience academic, emotional, and behavioral problems during the morning hours, and they typically do their best work at night. Thus, circadian rhythm disorders are frequently mistaken as other sleep disorders such as insomnia (due to the difficulty falling asleep) or excessive daytime sleepiness (due to the difficulty awakening in the morning and/or resulting insufficient sleep from the necessary early rise time for school).

Treatment options for DSPS include appropriate sleep hygiene, bright-light therapy, melatonin, advancing bedtime, and chronotherapy. The beginning treatment phase is usually the most difficult and requires strict adherence to the treatment protocol. The child should also have the same bedtime and wake-up time every day. Television and computers should be avoided for the last hour before bedtime, and the child's bed should only be used for sleeping. Caffeine, if consumed, should be limited to before or during lunch. Bright-light therapy includes controlling light and dark exposures throughout the day. With this treatment, the child uses bright-light exposure during the day and avoids light exposure after sunset. Exposure to the light of dawn is important to training the circadian rhythm, and controlling the time of light and dark exposure helps produce a phase advance. There is limited evidence found on light therapy, but it appears to be a rational and effective treatment for DSPS, but family compliance may be a problem. Melatonin has been shown to be effective in altering the sleep phase. It is taken 1 h before bedtime and helps advance the timing of sleep. 1 mg is the beginning dosage given and is slowly increased to 3 mg if found to be ineffective. Bedtime and melatonin administration is then advanced by 15 min each day until the desired time of sleep onset is achieved. Chronotherapy is also used as treatment for DSPS. With this therapy, the bedtime is systematically delayed by 3 h each night until the desired bedtime is reached.

Advanced Sleep Phase Syndrome

ASPS is a disorder where the major sleep episode is advanced beyond the desired clock time. Symptoms of this include evening sleepiness resulting in the inability to remain asleep until the desired time of sleep and early awakening lasting for at least 3 months. Sleep onset times are as early as 5:00 pm but no later than 8:00 pm, and wake-up times range from 1:00–5:00 am. ASPS is more likely to occur in children who have a family member with similar symptoms. Treatment for ASPS includes bright-light therapy and chronotherapy. Bright-light therapy would expose the child to light during the early evening hours producing a phase delay. Chronotherapy would systematically delay the bedtime each night until the desired bedtime is achieved.

Non-24-h Sleep-Wake Disorder

This disorder occurs when the circadian pacemaker changes with respect to the 24-h day. Prolonged exposure to light can cause the circadian pacemaker to maintain a schedule longer than a normal 24-h day. This causes the child's sleep schedule to have no pattern, but sleep logs usually reveal a successive delay in sleep onset and wake times. This may lead to insomnia and excessive daytime sleepiness when the endogenous rhythm is out of phase with normal clock time, but when they are in phase, the symptoms are not present. Melatonin is the major treatment for this disorder. It is also important that the child is active during the wake time and in dark and quiet conditions during time for sleep.

Sleep-Related Movement Disorders

The most common sleep-related movement disorders include rhythmic movement disorder (RMD), periodic limb movement disorder (PLMD), and restless legs syndrome (RLS). In RMD, the child exhibits repetitive movements at sleep onset and following a nocturnal arousal in order to initiate sleep. Most often, the child presents with repetitive head rolling, head banging, or body rocking. RMD is very common in young children and often resolves by age of 4–5 in typically developing children. RMD is generally benign, and treatment involves parental reassurance and safety (tightening bolts on bed or crib, padding headboard to avoid bruising). In rare cases that are either severe or persist into older childhood or adolescence, treatment with benzodiazepines for a brief term may be useful.

PLMD is a movement disorder characterized by periodic limb movements in sleep (PLMS) that result in fragmented sleep of poor quality and impairment in daytime functioning due to the sleep disturbance. PLMS are brief movements (jerks) that can last up to 5 s occurring at 20–40 s intervals, typically in the lower extremities. PLMD is diagnosed by overnight polysomnography documenting the presence of PLMS. The most common cause of PLMD

is low ferritin, for which supplemental iron may be helpful. Dopaminergic agonists may be helpful in some cases.

RLS is a clinical diagnosis made using adult criteria at this time. Adult criteria include an urge to move the legs, urge to move begins or worsens when sitting or lying down, urge to move is partially or totally relieved by movement, and urge to move is worse in the evening or night than during the day or only occurs in the evening or night. Clinically, children often describe RLS using age-appropriate symptoms such as "spiders crawling," "tickles in my legs," or "creepy crawly feeling." Prevalence of RLS in children is unknown, but there is felt to be a strong family history component. RLS and PLMD are often comorbid. RLS is a clinical diagnosis, but often is associated and comorbid with PLMD documented on an overnight sleep study. However, diagnosis of PLMD is not as highly correlated with comorbid RLS. As in PLMD, the most common cause of RLS is low ferritin, for which iron supplements can be helpful. Dopaminergic agonists may also be helpful in some cases. There is a proposed relationship between ADHD and RLS, implicating a possible dopamine pathway as the common pathophysiologic link. Symptoms of ADHD have been found to improve with treatment for RLS and/or PLMD with a dopaminergic agonist.

In summary, pediatric sleep disorders are a common occurrence resulting in insufficient and/or fragmented sleep of very poor quality. The presence of untreated sleep disorders is associated with significant daytime impairments in social, academic, emotional, and neurobehavioral functioning. Pediatric sleep problems can present as the primary sleep disorder, or as a secondary consequence of underlying medical or psychiatric disorder. Children should be routinely assessed for sleep disorders, as the presence of these disorders can significantly impair their quality of life.

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Sleep Disturbances

►Sleep Disorders

Sleep Problems

►Sleep Disorders

Sleep Stages

►Sleep
►Sleep Architecture

Sleep Structure

►Sleep
►Sleep Architecture

Sleep Terror Disorder

►Night Terrors

Sleeper Effect of Divorce

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Synonyms

Adult children of divorce; Intergenerational transmission of divorce; Long-term effects of divorce; Sleeper influence

Definition

The sleeper effect of divorce refers to the phenomenon whereby individuals who previously showed positive recovery following childhood parental divorce later exhibit adjustment difficulties in young adulthood stemming from the earlier experience of parental divorce [1, 2]. Studies show that some children and adolescents who appear to recover and cope well after parental divorce have long-term effects in young adulthood that were not expected based on previous adjustment. Longitudinal research suggests that as children of divorce enter adulthood, they may be more likely than the general population to experience concerns about not being loved, have difficulties in relationship formation and maintenance, and have fears regarding betrayal and abandonment in romantic relationships [2]. Furthermore, in comparison to their young adult counterparts from non-divorced families, adult children from divorced families have been found to be at risk for earlier sexual activity, low self-esteem, reduced life satisfaction, and poorer psychological well-being [2–6]. Additional long-term outcomes identified in adults from divorced families include lower educational attainment, less close ties to parents (especially fathers), more marital discord, and greater likelihood of experiencing their own divorce [7]. However, a great deal of controversy exists regarding the validity and the extent of the sleeper effect of divorce and its delayed manifestations [8].

Description

The existence of a sleeper effect of divorce was first identified by Judith Wallerstein in her longitudinal study of parental divorce [1, 9]. Wallerstein's study began in 1971, and followed 131 children from 60 divorced families over a span of 25 years [2]. At the 10-year follow-up, Wallerstein observed an unexpected finding which she termed the sleeper effect. Especially evident among the young women in her sample, this delayed effect of parental divorce at young adulthood was noteworthy, as it coincided with a time in life when important decisions are being made regarding love and commitment [9]. This sleeper effect pattern was evident in 66% of the young adult women in her study between the ages of 19–23. Presumably, these young women were overwhelmed with fears and anxieties about commitment and betrayal in their own relationships as they reflected upon the lack of success of their parents' marriages. Among the 19–23 year old young men in her sample, 40% were described as having limited educational attainment, a perception of having little control over their lives, and not having clearly identified goals.

Wallerstein's research on the long-term effects of divorce has received considerable attention over the years from scholars, the general public, and the media, and her work also has influenced clinical practice and social policy [8]. While Wallerstein's study is noteworthy for directing attention to adult outcomes of parental divorce, her research also has drawn criticism for its methodological limitations. Although her use of case-studies based on in-depth clinical interviews provides vivid and rich personal accounts of parental divorce, limitations of her research include its homogeneous sample (White, middle- to upper-middle class families from California), the absence of a comparison group from non-divorced families, and the non-random sampling procedure (e.g., divorce counseling was offered as a participation incentive [8, 10, 11]). Furthermore, a significant proportion of the parents in the sample were noted to have personal histories of psychopathology [12].

At the 25-year follow-up, Wallerstein added to the original sample a comparison group of peers from the same community who were from non-divorced families [2, 13]. The addition of the comparison group addressed one methodological flaw of Wallerstein's research. Nevertheless, criticism of the conclusions drawn from her research remained. It has been argued that Wallerstein's depiction of long-term outcomes of parental divorce provides an unduly gloomy, negative and pessimistic view of parental divorce that paints a portrait of pathology [11, 14].

Hetherington and Kelly [15] emphasized that the negative long-term outcomes of parental divorce are exaggerated. Their findings from the Virginia Longitudinal Study of Divorce and Remarriage revealed that 25% of adult children from divorced families had serious psychological, emotional, or social problems in comparison to 10% of adults with continuously married parents. In other words, 75% of those who experienced childhood divorce showed positive adaptation in adulthood. When children from divorced families do not endure additional adversity, the overwhelming majority are able to cope and emerge as competent, responsible, well-adjusted adults [16]. Lansford [17] similarly summarized in her review of the literature that most individuals who experience parental divorce in childhood do not exhibit long-term negative consequences. Amato asserted that while the body of research supports the conclusion that parental divorce elevates the risk for multiple adverse outcomes for children throughout the life course, the effects are not as dramatic or pervasive as Wallerstein suggested. Rather, he concluded that the research evidence supports a moderate version of Wallerstein's perspective [8].

In the decades that have followed the initial identification of the sleeper effect, the research literature on the long-term effects of parental divorce has expanded considerably. Furthermore, through the use of carefully crafted, sophisticated methodologies, this body of research has provided a much more complex and nuanced perspective on the impact of parental divorce across the life course [11, 17]. Examination of research on the long-term effects of parental divorce follows, with a focus on three outcomes frequently identified in the literature: intimate relationships, psychological well-being, and parent–child relationships.

Parental Divorce and Intimate Relationships

Research indicates that differences in adjustment between adults from divorced and non-divorced families are often found in the realm of intimate relationships [18]. Indeed, the domain of development most frequently identified as being influenced by the sleeper effect is that of intimate relationships in adulthood. As Wallerstein [19] described:

> The central finding of our study is that, at adulthood, the experience of having been through parental divorce as a child impacts detrimentally on the capacity to love and be loved within a lasting, committed relationship. At young adulthood, when love, sexual intimacy, commitment and marriage take center stage, children of divorce are haunted by the ghosts of their parents' divorce and terrified that the same fate awaits them. These fears, which crescendo at young adulthood, impede their developmental progress into full adulthood. Many eventually overcome their fears, but the struggle to do so is painful and can consume a decade or more of their lives. (p. 410)

Wallerstein [13] reported that at the 25-year follow-up, when participants were between the ages of 28–43, 60% of the women and 40% of the men had established enduring, gratifying, and sexually satisfying relationships. She noted that some of the men appeared to avoid intimate relationships, as 42% had never married or cohabited for more than six months, whereas this was true for only 6% of men in the comparison group. In contrast, all of the women from both the divorced and non-divorced groups had been involved in brief or enduring intimate relationships.

Research which has examined intimate relationship attitudes and behaviors has provided further insight into the romantic relationship adjustment of individuals from divorced families. Adult children of divorce have been shown to display more anxious and avoidant attachments in their intimate relationships when compared to adults from intact families [20, 21]. Furthermore, adult children from divorced families report more insecurity within intimate relationships and a substantially higher incidence of trust related issues [21]. A qualitative investigation of young adults from divorced families revealed that many participants were cautious about marriage, feared they would make the same relationship mistakes as their parents, and worried about having feelings of rejection if they were to experience betrayal by their partners. These relationship fears were especially apparent among those who described distant and unsupportive parental relationships following divorce [22]. In contrast, paternal involvement has been found to ease some of these fears, as high paternal involvement predicted high levels of intimacy, commitment, and trust in intimate relationships for young adults from both divorced and non-divorced families [21].

Existing evidence indicates that individuals from divorced families are more likely to experience earlier transitions into intimate relationship behaviors and experiences. For example, individuals from divorced families initiate sexual activity at an earlier age than do those from non-divorced families [6], and they also are more likely to report having had more sexual partners [18]. A pattern of earlier intimate relationship involvement is also evident in the incidence of cohabitation. Utilizing data from the National Longitudinal Study of Adolescent Health, Ryan, Franzetta, Schelar, and Manlove [23] examined the impact of family structure history on the relationship formation behaviors of youth who were making the transition to adulthood in the late 1990s and early 2000s. They found that the more time youth spent living outside of a married, two biological-parent household, the greater the likelihood that they would form an early cohabiting union. Earlier age at marriage also is more likely among young adults from divorced families [24]. Interestingly, living in a stepfamily during childhood has been found to increase the likelihood of earlier marriage among young adults [23].

These earlier relationship transitions create risks for young adults from divorced families, as early age at marriage is one of the strongest predictors of divorce [25]. In regard to the intergenerational transmission of divorce, research reveals that adult children of divorce are twice as likely to divorce at some point during their marriage in comparison to those from intact homes [26]. In comparison to individuals from intact families, adult children of divorce are more likely to divorce when experiencing relationship problems than they are to work on issues within the relationship [26]. This may be due to the belief that commitments can be easily terminated when the relationship is no longer satisfying, which is evident

from the pro-divorce attitudes and high rates of cohabitation and divorce among adult children of divorce [3, 25]. In comparison to men, women who experience childhood divorce are more likely to have marriages that end in divorce [3].

Other research posits that later relationship difficulties for adults who experienced divorce during childhood may not be directly attributable to parental divorce per se, but to the amount of conflict within the home before, during, and after the divorce. As Amato [25] described, this may be due to a lack of positive relationship modeling by parents in unhealthy, affectionless, or high conflict marriages, which may contribute to maladaptive interpersonal communication issues for adult children from divorced families. Amato found that in comparison to adults whose parents had remained continuously married, adults whose parents had divorced were more likely to have interpersonal styles characterized by problematic communication, anger, and jealousy. These interpersonal difficulties, in turn, were found to elevate the risk for divorce.

Hetherington [18] used data from the long-term Virginia Longitudinal Study of Divorce and Remarriage to examine the impact of both parental divorce and marital conflict (without divorce) in the family of origin on marital instability in young adult offspring. She concluded that while both marital conflict and parental divorce contributed to offspring marital instability, the effects were greater for parental divorce. Furthermore, the greatest marital instability was observed among couples where both partners came from divorced families, and the difference in marital stability in that group as compared to couples where both partners came from low conflict non-divorced families was striking. However, it is essential to recognize that intimate relationship difficulties among adults from divorced families are not inevitable. In particular, Hetherington [18] found that having a supportive, well-adjusted partner was a protective factor, eliminating the difference in marital instability between participants from divorced and non-divorced families.

Parental Divorce and Psychological Well-Being

A range of adult psychological adjustment outcomes have been identified as being impacted by the earlier experience of parental divorce, with effects evident on measures of specific mental health indicators such as depression and anxiety, as well as for more global assessments of psychological well-being [3]. The focus of the review here will not be on articulating the effects of parental divorce on specific indicators of psychological adjustment. Rather, the emphasis will be on detailing the impact of divorce on psychological well-being more generally as evident in long-term longitudinal studies that have spanned decades. These longitudinal studies have helped to disentangle the complexity of effects of parental divorce on psychological well-being in adulthood.

Utilizing data from the Marital Instability Over the Life Course (MIOLC) study, Amato [8] was able to examine the psychological well-being of adults from divorced and non-divorced families, and to consider the impact of parent factors by drawing from data collected from the parents in an earlier wave of the study. Amato found that parental divorce lowered the psychological well-being of 10% of his sample [8]. In other words, 90% of adult children who experienced childhood divorce showed levels of well-being comparable to adult children from non-divorced families. Amato noted that his results suggested that divorce does not appear to reduce the percentage of children who reach adulthood with positive psychological well-being. Rather, parental divorce appears to shift some children from average psychological well-being to low psychological well-being.

Interestingly, a couple of different factors appeared to moderate the effects of parental divorce on psychological well-being in Amato's study. First, when parents reported low levels of marital discord, adult children of divorced parents had poorer psychological well-being than did their counterparts with continuously married parents. However, when parents reported high levels of marital discord, adult children of divorced parents had better psychological being than did those with continuously married parents [8]. These findings are consistent with the position that when children are exposed to chronic parental discord, they may be better off if their parents divorce. In contrast, when parents exhibit low levels of marital discord, the parental divorce may create more of a jolt for children, who may view it as an unexpected event. The second factor that moderated effects of divorce on psychological well-being was the number of family transitions that offspring experienced (i.e., parental divorces and remarriages), where more transitions were linked to lower psychological well-being. These results suggest that the accumulation of family transitions contributes to the negative effects of parental divorce.

Chase-Lansdale, Cherlin, and Kiernan [27] used longitudinal data gathered in Great Britain from the National Child Development Study to examine the long-term effects of parental divorce on the mental health of young adults (age 23). They found moderate, negative consequences of parental divorce for both men and women. Specifically, they found that the likelihood of scoring above the clinical

cutoff on the Malaise Inventory was 8% for young adults who had not experienced parental divorce and 11% for those who had experienced parental divorce. These authors concluded that while divorce raised the risk of serious emotional disorders, the large majority of individuals from divorced families did not exhibit these risks. Nevertheless, the effects on the subgroup seriously affected by divorce should not be discounted, as the proportional increase in those who may seek clinical intervention is noteworthy.

Again drawing from the National Child Development Study, Cherlin, Chase-Lansdale, and McRae [5] examined the effects of parental divorce on mental health at age 33. The authors noted that prior to parental divorce, more internalizing and externalizing symptoms were evident among individuals whose parents eventually divorced in comparison to those from non-divorced families. However, the results also indicated that parental divorce itself contributed to higher levels of internalizing and externalizing problems in adulthood. Furthermore, what is particularly noteworthy in these findings is that the gap in emotional problems between those from divorced and non-divorced families widened in adulthood. These results are consistent with the notion of a sleeper effect, whereby adjustment problems surface in adulthood. The authors suggested that parental divorce may set into motion a chain of events such as early childbearing or limited education that contribute to continued divergence in the life course for those from divorced and non-divorced families.

In summary, the results of the available body of research provide evidence for the potential for parental divorce to have long-term negative consequences on offspring psychological well-being. However, when combined with the findings of Hetherington and Kelly [15] described earlier (i.e., that 75% of adults from divorced families exhibit positive adjustment), the clear message from the research summarized here is that the majority of adult children from divorced families experience positive psychological well-being. Nevertheless, due to the small, but real elevated risk for psychological difficulties for adults from divorced families in comparison to those from non-divorced families, the impact of the divorce experience on lives of those experiencing adjustment difficulties should not be minimized.

Parental Divorce and Parent–Child Relations

As noted by Ahrons [10], parent–child relationships persist throughout the life course, and consequently, parental divorce can potentially alter parent–child relationships at any developmental transition. The available evidence indicates that parental divorce creates the greatest long-term risks for the father–child relationship. Relationships between adult children and their divorced mothers are closer than those between adult children and their divorced fathers. Furthermore, adult daughters are closer to their divorced mothers than are adult sons, and sons report somewhat more closeness to their divorced fathers than do daughters [16]. In his examination of multiple long-term outcomes of parental divorce, Amato [8] concluded that the strongest impact is on father–child relationships, where parental divorce results in poorer quality father–child relationships for approximately one-third of adult children.

Again using data from the MIOLC study, Amato [7] examined the effects of marital discord and divorce on adult children's parent–child relationships for individuals in both divorced and non-divorced families. Compared to children with continuously married low discord parents, children who experienced parental divorce reported less closeness to both their mothers and their fathers. It should be noted that children with continuously married, high discord parents also had weaker ties with fathers (but not with mothers). Additionally, the negative effects of parental divorce on father–child relationships were stronger for daughters than for sons. Children with divorced parents also had significantly poorer father–child relationships than did those children with continuously married high discord parents.

Scott, Booth, King, and Johnson [28] examined patterns of change in father–child closeness following divorce in the National Longitudinal Study of Adolescent Health, tracking youth from adolescence to young adulthood. They found that 57% of participants experienced a decline in father–child closeness over this time period. However, 25% of the participants maintained close father–child relationships, and 14% reported increased closeness with their fathers over this time period. Those participants who maintained a close father–child relationship had a stronger mother–child relationship and a greater sense of well-being prior to the divorce. Interestingly, those who experienced an increase in father closeness were less likely to have pursued education beyond high school, and were more likely to have experienced their own family transitions such as cohabitation and parenthood.

Drawing from data collected from the longitudinal Binuclear Family Study, Ahrons [10] examined family ties among adult children who were interviewed 20 years after their parents' divorce. The majority of these adult children reported that their parents currently got along with each other fairly well. Furthermore, when parents were more cooperative with each other, their adult

children reported better relationships with their parents, as well as with their grandparents, stepparents, and siblings. The desire for their parents to get along with each other was clearly evident among these adult children – they wanted parents to be cordial with each other in order that both parents could share in important events in the adult child's life, such as graduations, weddings, and the birthdays of grandchildren. Ahrons concluded that when parents are able to minimize their conflicts and co-parent effectively, their adult children are able to maintain their relationships with both parents.

The living arrangements that are established following parental divorce are important to take into consideration in efforts to understand the relationship dynamics between adult children and their fathers in divorced families. Although historically there has been an increase in shared custody arrangements in the United States, much of the available research conducted over the years has centered on families where mothers had custody and fathers were the non-residential parents [24]. Contact with non-residential fathers has been found to decrease over time [24], which can pose risks to the maintenance of strong father–child relationships.

Fabricius [29] considered the issue of living arrangements in his study of college students from divorced families. He found that these students endorsed living arrangements that would give them equal time with each parent, and the majority of the participants also believed that equal time with each parents was best for children. Furthermore, those individuals who reported having living arrangements that gave them equal time with both of their parents or a lot of time with their fathers had high quality relationships with both their mothers and fathers.

Additional findings point to the significance of both post-divorce living arrangements and parent–child conflict for father–child relationships. Specifically, the more time college students reported living with their fathers after divorce, the better their relationships were with their fathers, independent of parental conflict. In contrast, the more parental conflict they experienced, the worse their father–child relationships were, independent of time spent with father [30]. Hearing adult children's perspectives on living arrangements in these two studies sheds additional light on the importance of maintaining father–child relationships post-divorce, as revealed in the viewpoints of the children themselves.

In summary, the research reviewed here portrays a complex picture of the impact of parental divorce on parent–child relationships in adulthood. Clearly, the literature to date shows that the father–child relationship is most adversely affected by parental divorce. However, when parents are able to put aside their conflicts and co-parent effectively, positive benefits accrue for parent–child relationships. The significance of positive parent–child relationships is further underscored when the literature previously described on intimate relationships and psychological well-being is considered. It is apparent that these outcomes are all interrelated (e.g., high quality parent–child relationships are linked to positive intimate relationship adjustment).

These findings also highlight the life-long significance of the parent–child bond. Whereas most of the available literature has focused on the effects of parental divorce on parent–child relationships in young adulthood, recent research suggests that the consequences can extend later into the life course, when adult children from divorced families deal with issues such as caring for an aging parent. For example, Lin [31] found that although adult children with divorced parents were just as likely as adult children of widowed parents to provide care and financial assistance to mothers, those from divorced families were less likely to provide care for their fathers.

Conclusions

Examination of the available literature published during the last two decades on the long-term effects divorce provides some support for the existence of a sleeper effect of parental divorce, with consequences apparent for outcomes including intimate relationships, psychological well-being, and parent–child relationships. However, the strongest message that should be taken away from this analysis of the research is that the overwhelming majority of adults from divorced families show positive adaption in their adult years. Furthermore, it is important to note the limitations of this literature, as long-term longitudinal examination of outcomes of parental divorce requires decades of research. Consequently, it is important to be mindful of cohort effects, as the experience of parental divorce in the 1970s and 1980s is likely very different than today, due to changes in divorce laws and policies, the decreased stigma associated with parental divorce, and changes in family structure more generally [10]. Even so, findings from the most recent longitudinal study cited in this review (i.e., the National Longitudinal Study of Adolescent Health) are generally consistent with findings from earlier studies.

Nevertheless, acknowledging the potential significance of young adulthood for individuals from divorced families is important. As Amato [7] noted, early adulthood is a critical stage in the life course. It is a time when young people make important life decisions about education, marriage, and parenthood that can have enduring effects

on their lives. Amato further suggested that many young people are able seek guidance and support from parents as they contemplate these major life transitions. Unfortunately, youth from troubled divorced families might be at a disadvantage due to the possibility that they have weaker ties with their parents.

Wallerstein and Lewis [13] contend that parental divorce is a "life-transforming experience" (p. 367). Without a doubt, the effects of parental divorce continue to echo across the life course. Nevertheless, it would be misguided to overemphasize the consequences of the dissolution of their parents' marriage for the life course outcomes of adult offspring. Viewing parental divorce from a problem-focused "►Child of Divorce" paradigm can create fear, restrict possibilities and become a self-fulfilling prophecy for children and parents from divorced families [32]. Furthermore, Kelly and Emery [11] make the important distinction between painful memories of divorce and pathology. As young adults recall their parents' divorce, they may describe painful memories, and this is to be expected given the stressors associated with parental divorce. However, painful memories do not preclude positive adjustment – we need to recognize that lingering painful childhood recollections and adaptive functioning in adulthood can coexist. Most importantly, those who intervene with divorced families should work towards fostering protective factors known to promote resilience in both children and adults from divorced families [24]. When children from divorced families have involved parents and positive parent–child relationships, when they receive good parenting including positive co-parenting, and when they experience low parent conflict, their long-term developmental outcomes are likely to be characterized by positive adjustment.

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Sleeper Influence

►Sleeper Effect of Divorce

Sleeping Pills

►Anxiolytics/Hypnotics

Sleeping Pills (e.g., Ambien, Lunesta, Sonata)

►Depressants

Smacking

►Spanking

Smoking

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Definition

Tobacco smoking is the inhaling and exhalation of the fumes of burning tobacco which contains nicotine.

Description

Cigarette smoking is one of the most popular and persistent habits of our society. According to the American Cancer Society, each day more than 3,500 people under the age of 18 try their first cigarette, and approximately one-third will become regular daily smokers and will eventually die from a smoking-related disease. Children of smokers are much more likely to become smokers themselves as a result of observing their parents smoking and viewing their behavior as the social norm. Given that cigarette smoking remains the leading cause of preventable deaths, the decision made to smoke during the teen years has long-term consequences. Many teens begin smoking with the expectation that they will soon quit the habit but the addictive nature of nicotine leads most to continue the habit for decades. Addiction to nicotine is a common consequence of tobacco use. Nicotine addiction in teenagers is as severe as that in adults. Physiological and psychological symptoms include; hunger, dizziness, difficulty concentrating, irritability and craving for cigarettes. They also have similar difficulty in quitting tobacco as adults. Ninety percent of those who will become regular smokers start smoking before age 19 years. Knowledge of the long-term health consequences of smoking has not been a strong deterrent for use among teens, as they start smoking with recognition of the health risks but believe that they will be able to quit smoking before the health consequences become serious. There are a number of environmental factors linked to teen smoking, including parents, siblings and peers who smoke; exposure to tobacco advertising; and the portrayal of tobacco use in the media. Teens also experiment with smoking for a variety of psychosocial reasons: they want to change their self-image, look tough or grown-up, or because most of their friends smoke. Peer acceptance is a major factor for youthful smoking. Further, unlike many other drugs, nicotine enhances rather than impairs the capacity of normal people to function, and they experience primarily the pleasurable effects of smoking.

Relevance to Childhood Development

Smoking is a major health hazard to infants, children, adolescents, and their families. The U.S. Surgeon General warns that cigarette smoking is as addictive as cocaine and heroin. Research suggests that children who thought addiction happened immediately were committed to never smoke at all. Thus, the fear of addiction could be a protective factor in prevention efforts. Treatment programs for smoking have not been very successful. Three out of four smokers either wish to or have tried to stop smoking, and continue simply because they find it difficult to quit.

Supportive counseling and group interventions have been shown to be an effective part of a comprehensive nicotine treatment programs for teens. However, protective factors such as close communication with parents, high self-esteem, assertiveness, school success, social competence, and a strong sense of right and wrong, can prevent teens from smoking.

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Snicker

►Laughter

Social Adjustment

►Global Assessment of Functioning Scales

Social Aggression

►Relational Aggression

Social Anxiety

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Synonyms

Behavioral inhibition; Excessive shyness; Social phobia

Definition

Social ►anxiety refers to an experience of anxiety (e.g., emotional discomfort, fear, apprehension or worry) regarding social situations, and the potential for evaluation in these situations.

Description

Social anxiety generally consists of three constructs: fear of negative evaluation, general social avoidance and distress, and social avoidance and distress in new situations [13]. Children with social anxiety are often mislabeled as shy (reticent in social situations). In fact, there is much overlap between social anxiety and shyness; children with either may experience similar somatic responses in social situations (e.g., heart palpitations, sweating, trembling, blushing) and similar negative cognitions (fear of negative evaluation, or of being embarrassed or humiliated). Yet, shyness that is excessive to the point of functional impairment becomes social phobia, or social anxiety disorder. It should be noted that the majority of those with social anxiety disorder have reported childhood shyness, but that shyness is not a necessary condition for the disorder [5]. The *DSM-IV* criteria that a child or adolescent must meet in order to be diagnosed with social anxiety disorder are the following: (1) a chronic, excessive fear of social or performance situations that the child fears will be embarrassing (anxiety must occur in peer settings); (2) the fear of social situations almost always triggers an anxious response; (3) the feared social situations are avoided or endured with great distress; (4) the fear or avoidance must cause significant impairment in functioning; (5) the fear or avoidance is not better explained by medication, medical condition, or other mental disorder; and (6) the symptoms must be present for at least 6 months [2].

Social anxiety disorder is one of the most prevalent childhood psychological disorders. Children may be affected with social anxiety disorder as young as 6 years of age, and the average age of onset is between 11 and 12 years of age. The course of social anxiety, if not treated, can be chronic and persist into adulthood. In addition to somatic complaints, children and adolescents may also present symptoms of irritability, crying, freezing in social situations, and inflexible temperamental styles. Children and adolescents with social anxiety disorder often exhibit comorbid disorders, the most common of which are attention-deficit/hyperactivity disorder, depression, and substance use disorders [6].

There are several theories, but no definitive explanation for how social anxiety develops in children and adolescents. From a biological view, genetics plays a role; 16%

of relatives of those with social anxiety disorder also have the disorder compared with 5% of relatives with no psychiatric disorders [9]. Children that have the early appearing behavioral characteristic of ▶behavioral inhibition are more likely to develop social anxiety disorder than those that do not. Behavioral inhibition has been linked to higher epinephrine activity and higher heart rates in novel social situations [12]. Some evidence suggests that behavioral inhibition is a genetic trait that runs in families; parents of children with social anxiety disorder have been shown to be more likely to have behavioral inhibition than the parents of children without the disorder [15]. Furthermore, studies have shown that those with high social anxiety levels have increased activity in the amygdala when presented with novel faces or faces with neutral expressions [7].

Several environmental factors may also contribute to the development of social anxiety. Along with peer rejection and victimization experiences, other life experiences that have been linked to the development of social anxiety are traumatic conditioning after experiencing panic in a social-evaluative situation [4], and maladaptive familial environments, particularly with high levels of parental criticism and overcontrol [18]. With regards to parenting behaviors, an anxious-resistant attachment is a risk factor for social anxiety disorder, while maternal warmth and secure attachment are associated with children who form healthy peer relationships [3]. Parental anxiety, rejection, and overprotection are all associated with social anxiety disorder in children and adolescents. Children may learn their parent's anxious behaviors through observational learning. Furthermore, overprotective parents may limit their children's ability to engage in social situations, thus setting up a pattern of social isolation and avoidance [5].

In most cases a combination of factors is likely present, including a biological vulnerability to anxiety and other environmental and psychological stresses that contribute to the development of social anxiety disorder [5]. For example, one theory is that social anxiety may be due to a biological predisposition for behavioral inhibition, which leads to a failure to establish peer relationships that help one to develop appropriate social skills. Lack of social skills and/or friendships cause further anxiety, insecurity, and withdrawal from social situations [17].

Concerning treatment for social anxiety, many children go without ever receiving help because they do not "act out," and thus teachers and parents may not recognize their level of discomfort. Similarly, social anxiety in adolescence is often overlooked as normal teen social insecurity. One of the most common and effective treatments for social anxiety is ▶cognitive-behavioral therapy (CBT). CBT targets three components of anxiety: physiological, cognitive, and behavioral. The physiological component is addressed through relaxation techniques. The cognitive component may include teaching children how to use constructive rather than negative self-statements. The behavioral component involves systematic desensitization to feared stimuli through imaginal as well as in vivo exposure. Some CBT treatments for social anxiety add a social skills training segment into the program. Another treatment option that has proven to be effective for social anxiety disorder is the use of psychotropic medications, including ▶selective serotonin reuptake inhibitors (SSRIs) and tricyclic anti-depressants. The SSRIs are generally the preferred drug for treating anxiety in youth [10]. The choice to use one modality (medication or therapy) over the other, or to use combined treatment, often relies on clinical judgment about individual patients. For severe cases of social anxiety in youth, a combined treatment of medication and therapy is generally used in order to increase the probability of a positive outcome [10].

Relevance to Childhood Development

Social anxiety can hinder a child's social, emotional, and cognitive (academic) development. Children with social anxiety have difficulty participating in typical classroom and school activities. They may struggle with speaking in front of the class, eating in the cafeteria, or using the public restroom. In many cases, children with social anxiety will refuse to go to school. They will often avoid social situations like talking on the phone or in person with peers, joining sports teams or clubs, and having friends to their house to play. In fact, children with high levels of social anxiety generally report fewer friendships, and perceive themselves as having a lack of social support and intimate, close relationships [13]. Socially anxious children are also less well-liked, teased more frequently, and suffer more often from peer rejection and relational victimization than non-anxious children [11]. The relationship between peer neglect/rejection and social anxiety is bidirectional; peer neglect/rejection also contributes to increases in youths' social anxiety levels [11]. Studies indicate that the effects of social anxiety are cumulative and increasingly detrimental. In one study, social isolation at age 7 predicted low levels of social competence and self-worth, and high levels of loneliness, and peer-group insecurity at age 14 [16].

With the demonstrated close links between same- and other-sex relationships, it seems likely that social anxiety would also disrupt the development of other-sex friendships and subsequent romantic relationships.

Indeed, anxiety is associated with fewer date initiation behaviors and interactions with the other sex that in turn may delay entry into romantic relationships [8]. In an analysis of retrospective reports, individuals with a history of social anxiety reported acute feelings of self-consciousness during social situations in junior high school and had fewer dating partners than a comparison group between the ages of 12 and 21 [1]. Further reflecting developmental continuity, those teens that rarely date in adolescence tend to exhibit decreased social skills, social withdrawal, and romantic dysfunction later in adulthood [14].

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Social Anxiety Disorder

▶Social Phobia

Social Cognition

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Synonyms

Social thinking

Definition

Social cognition refers to the ways in which individuals think about and process information relevant to their social interactions. This information includes the thoughts, feelings, motives, and behaviors of themselves and other people.

Description

Children's Theory of Mind

From very early in life, children have a *theory of mind*, which is an understanding that people have mental states, including desires, beliefs, and intentions. These mental states are not always accessible to others but serve to guide individuals behavior. As early as 2 months of

age, infants make distinctions between animate and inanimate objects, and by 6 months of age, babies know that humans behave differently toward people than toward inanimate objects. By 9 months of age, babies can discriminate between a person's positive versus negative intent (for example, offering a toy versus withholding a toy). Between nine and 12 months of age, babies begin to participate in joint attention activities in which they direct a partner's attention to objects or events. Such actions indicate that by the end of the first year, babies perceive that a social partner can understand and share their own perspectives. By 18 months of age, children can reason about other people's desires, and their behavior toward others tends to be influenced by their perceptions of these desires [13].

There are great advances in children's theory of mind between the ages of 2 and 5 years. Young children know that others cannot observe their thoughts, and that as a result they have access to information that others do not. By about 4 years of age, children understand that people are likely to act on the basis of false beliefs. Children may use their knowledge about false beliefs to their own advantage by deliberately deceiving their partner. They may give false clues about where an object is hidden or blame someone else for a transgression that they committed that was not witnessed by others [13].

Person Perception

With the development of theory of mind, children are gaining insights regarding other people's desires and beliefs. However, children continue to have much to learn about the personalities and behavioral tendencies of themselves and their social partners. Children younger than about 7 or 8 years of age tend to describe themselves and others in terms of concrete, observable features. Nevertheless, even though young children may not spontaneously use personality traits, they do show some psychological self-awareness. For example, children ages 3-1/2 to 5 years old do characterize themselves along psychological dimensions, such as aggressiveness and sociability, when asked to respond to forced choice options regarding their personality traits. Furthermore, their characterizations are stable over time [4]. In addition, even if preschoolers do not yet use personality traits when describing others, they do show an understanding of the ways in which their closest companions typically behave. By 5 years of age, children make trait-like inferences, for example assuming that someone who has been aggressive in past peer interactions will continue to be aggressive. Moreover, 4 and 5 year olds can use trait labels to predict others' trait-relevant behavior [9].

Between the ages of 7 and 16 years, children increase their use of personality traits when describing others, though they continue to include concrete attributes in their descriptions. Person perception becomes even more complex during adolescence, as individuals are increasingly aware that their own and others' behavior can be impacted by situational factors that may lead them to act "out of character" [13].

Social Perspective Taking

An important aspect of social cognition is being able to understand the social partner's point of view, including the partner's thoughts, feelings, beliefs, motives, and intentions. According to Selman [11], children develop social perspective taking skills across five stages. In the first stage, Egocentric or Undifferentiated Perspective Taking (approximately ages 3–6 years), children are generally egocentric and thus are not aware of any perspective other than their own. In the second stage, Social-Informational Role Taking (approximately 6–8 years), children begin to recognize that others can have different perspectives from their own but believe that this occurs only because these individuals have access to different information. In the third stage, Self-Reflective Role Taking (approximately 8–10 years), children recognize that their own and others' points of view may conflict even if they have received the same information. At this point, the child can consider the other person's point of view and can recognize that the partner also has an understanding of the child's point of view. However, the child has difficulty considering his own perspective and the perspective of the partner simultaneously. In the fourth stage, Mutual Role Taking (approximately 10–12 years), the child can consider his own perspective and that of the partner simultaneously and realizes that the partner can do the same. The child can also assume the perspective of a disinterested third party and anticipate how each person will react to one another. Finally, in the fifth stage, Societal Role Taking (age 12 and older), individuals expect others to consider and adopt perspectives that most people in their social group would assume. Children proceed through these stages of social perspective taking in a fixed order, though the rate at which they do so may vary based on cognitive skills and social experiences.

Adolescent Egocentrism

As adolescents become capable of formal operational thinking, in which they are able to reason about abstract concepts and hypothetical events, they often overextend this ability when thinking about themselves and their social world. This leads to adolescent egocentrism, where

the adolescent's thoughts may reflect a great deal of self-absorption. Adolescent egocentrism seems to contribute to two distinct types of thinking [5]. The *imaginary audience* is the belief, brought on by the heightened self-consciousness of adolescence, that everyone is watching and evaluating the adolescent's behavior. The adolescent has a sense of constantly being "on stage," and seems to think that others are as preoccupied with his or her appearance and behavior as he or she is. The second belief is the *personal fable*, in which the adolescent focuses on the uniqueness of oneself and one's thinking and tends to think that no one can possibly understand his or her experiences or emotions. The personal fable contributes to beliefs that one is invincible, and thus appears to play a role in adolescents' greater tendency to participate in risky behaviors given their propensity to believe that negative consequences could not possibly occur for them.

Models of Social-Cognitive Processing

In addition to studying general types of changes in social cognition across development, researchers have focused on individual differences in children's social cognition as they respond to specific types of social situations. Quite often social situations are ambiguous in nature, and individuals vary in their interpretations and motivations during social interactions. Indeed, individual differences in social-cognitive processing help to explain why children confronted with the same social situation, such as having milk spilled on them by a peer, may choose to act in very different ways (e.g., retaliating vs. cleaning up the mess). A variety of models have been proposed to describe specific social-cognitive processes that underlie children's behavioral choices, and several of the more prominent models are described below.

One of the most influential models of social-cognitive processing was proposed by Crick and Dodge [3]. According to this model, as individuals interact with others they bring to the situation their own social knowledge, schemas (e.g., scripts for how to deal with conflict), and a database of memories of past social experiences (e.g., memories of frequently being victimized by peers). They then receive as input a set of social cues (e.g., a peer tripping them), and their behavioral response is a function of how they process those cues. The model proposes that there are six steps of processing that occur: (1) encoding of external and internal cues, (2) interpretation of those cues, (3) selection of goals, (4) response access, (5) response decision, and (6) behavioral enactment. To illustrate, a child who is tripped by a peer and has a history of being victimized by peers may attribute the action to hostile intent rather than to accidental circumstances. That child then selects a goal, perhaps retaliation or avoidance. The goal that is given priority is likely to influence the types of social responses generated (e.g., aggressive vs. passive behaviors). As children make a decision about how to respond, several social-cognitive constructs are likely to come into play. Children's self-efficacy perceptions are important, given that children are most likely to select behaviors they think they would be able to produce successfully. Outcome expectations also play a significant role, as children tend to choose behaviors they feel will result in a positive outcome. In addition, children should view the response as being appropriate according to their own moral rules or values (e.g., beliefs about the legitimacy of aggressive behavior). Thus, children who believe that they are good at being aggressive, that aggressive behavior will bring positive results, and that aggression is legitimate are quite apt to decide that aggressive behavior is an appropriate response.

Notably, the Crick and Dodge model is circular in nature, such that each step of processing may influence the others through a series of feedback loops. For example, whereas a child who attributes a protagonist's action to hostile intent may be more apt to select a retaliation goal, it is also possible that a child who generally gives high priority to retaliation goals (Step 3) may be especially primed to attribute any harm caused by the protagonist to hostile intent (Step 2). Notably, though each of the social-cognitive variables may predict behavior, behavior is best predicted by multiple variables.

Another important social-cognitive theory is Weiner's attribution theory [14]. This theory emphasizes that during social interactions, individuals are concerned with determining the perceived causes of behavior and events. Three underlying dimensions of causes are proposed. The first is *locus*, in which the individual must decide whether a cause is internal (e.g., lack of social ability) or external (e.g., bad mood of the interaction partner). The second dimension is *stability*, which identifies a cause as constant or changing over time. The third dimension is *controllability*, or whether a cause is subject to volitional influence. The attributions a person makes can have a strong impact on factors such as behavioral choices, expectancy of success, and emotion. For example, an individual who is not invited to participate in a special activity with peers may attribute this incident to external, stable, and uncontrollable factors. In turn, the individual may decide to withdraw socially, expect future rejection, and feel hopeless.

Selman's Interpersonal Negotiation Strategies (INS) model [12] asserts that four information processing issues are central as individuals engage in social problem solving. First, the individual must define the specific problem and

evaluate it in terms of the social relationship (i.e., whether the problem is a mutual one, or whether the focus is on one person). The second process focuses on the action to be taken (i.e., the strategy or strategies suggested to deal with the dilemma). The third process involves considering the consequences of the solution proposed, including consequences to the protagonist, the significant other, and the relationship between the two people. In the fourth process, the individual considers the effect of the solution on the emotions of those involved. According to this model, the individual's use of strategies may vary depending on the context (e.g., status difference between interaction partners, type of relationship).

Finally, Bandura's [1] self-efficacy theory proposes that individuals' level of confidence in their ability to successfully perform a certain behavior will impact whether they choose to enact that behavior, how much effort they will exert, and how long they will attempt the behavior in the face of challenge. Bandura asserts that expectations of personal efficacy come from four primary sources of information, including performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal. Bandura distinguishes self-efficacy perceptions from outcome expectations, which are defined as an individual's estimate that a given behavior will result in a particular outcome. Indeed, although a person may believe that a specific behavior may lead to a certain consequence, that person may not think he or she could be successful at enacting that behavior. For example, the individual may believe that using negotiation strategies would result in the peaceful resolution of a conflict, but she may think that she is not a very effective negotiator. In contrast, a person may believe that she could effectively perform a behavior but may expect that action would not result in a desirable outcome. Ultimately, both self-efficacy perceptions and outcome expectations impact individuals' behavioral choices.

Each of these theoretical models highlights specific types of social-cognitive variables that may operate as individuals decide how to respond to social situations. The models differ in the specific variables they emphasize, but across these models various social-cognitive processes are viewed as playing significant roles in predicting individuals' social behavior. These variables include attributions of hostile intent, attributions for social success or failure, social goals, strategy knowledge, self-efficacy perceptions, outcome expectations, and beliefs about the legitimacy of aggression.

Relevance to Childhood Development

A great deal of research has shown that children's social-cognitive processes are related to their psychosocial adjustment. Among young children, those who show more sophisticated knowledge about theory of mind display more advanced social skills and are more highly accepted by peers compared to age mates. Gains in person perception abilities across childhood into adolescence can contribute to greater understanding and intimacy in social relationships. In addition, children with more advanced social perspective taking skills are more likely to experience empathy for others and are more apt to engage in prosocial behavior [13]. Although advances in most social-cognitive processes are associated with positive outcomes, it should be noted that adolescents' strong endorsement of personal fable beliefs is correlated with a greater likelihood of engaging in risky behaviors, including dangerous driving and unprotected sexual interactions.

Children's social adjustment is also related to individual differences in their social-cognitive processes as they respond to specific types of social situations. Specifically, children who are aggressive and/or highly disliked by their peers tend to show a variety of social-cognitive deficits or distortions. For example, rejected-aggressive children are apt to display a tendency to make attributions of hostile intent and, in turn, to endorse aggressive responses to provocations [10]. Such behavior often leads to further rejection by peers (and reinforces children's interpretations that others have hostile intentions) and leaves children vulnerable to a variety of negative outcomes, including loneliness, depression, delinquency, and school dropout [8]. Other social-cognitive processes are similarly associated with maladaptive behavior and peer rejection. Aggressive children are more apt to endorse retaliation goals and tend to generate primarily aggressive responses. They tend to have high confidence in their ability to carry out aggressive behaviors and low self-efficacy regarding their ability to enact prosocial responses. Moreover, aggressive children expect positive outcomes for their use of aggression, including gaining material rewards, status, and power, and tend to have little regard for the suffering of their victim. Aggressive children also believe that their choice of aggressive behavior is morally legitimate [6].

Behaviorally withdrawn children similarly appear to have a specific social-cognitive profile that underlies their behavior. Like aggressive children, they may also show a hostile attributional bias, but they are more apt to endorse socially avoidant goals and strategies and think they are better at carrying out these behaviors than at being aggressive or prosocial [7]. Socially withdrawn behavior is often associated with being overlooked, or neglected, by peers during the childhood years. However, as children approach adolescence, withdrawn behavior is increasingly associated with overt rejection, and such rejection can

leave the child vulnerable to a variety of negative outcomes, including loneliness, depression, and social anxiety.

Research has shown that the most socially adjusted children are those who make attributions to accidental circumstances, endorse relationship-oriented goals, and select prosocial strategies [7]. Children who are better accepted by their peers tend to have high self-efficacy for their ability to act in prosocial ways and expect positive outcomes that will enhance relationships. Those children with more adaptive social-cognitive functioning tend to engage in more prosocial behavior. This behavior, in turn, contributes to greater acceptance by the peer group and a higher likelihood of being involved in friendships. These positive social experiences are associated with adaptive psychosocial adjustment.

Traditionally, social skills intervention programs have focused on teaching children specific social behaviors, such as sharing and initiating social interactions. Increasingly, however, intervention programs are beginning to target social-cognitive processes as well. For example, some interventions have focused on teaching children to make nonhostile attributions when the intent of the actor is ambiguous, to give higher priority to prosocial goals, and to generate more prosocial strategies [2]. By addressing the social-cognitive processes that underlie children's behavioral choices, children may be prompted to engage in more prosocial behavior that in turn will increase their acceptance in the peer group and decrease their risk for poor psychosocial adjustment.

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Social Cognitive Learning Theory

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Synonyms

Social learning theory

Definition

Albert Bandura's social cognitive theory conceptualizes cognitive, vicarious, self-regulatory, and self-reflective processes as they relate to human motivation and behavior.

Description

Social cognitive theory was founded on the social learning theory proposed by N. E. Miller and J. Dollard in 1941 [8]. Early social learning theorists were heavily influenced by behaviorism and drive reduction principles. In 1963 Albert Bandura and Richard Walters extended social learning theory by stressing that observational learning is a natural occurrence. They also stressed that reinforcement controls performance, not learning, and that learning can happen vicariously. Bandura's work also developed the importance of self-beliefs in learning behaviors. With the 1986 publication of his book *Social Foundations of Thought and Action: A Social Cognitive Theory* [2], Bandura made a clear distinction between his theory, which emphasizes the important role of cognition in human behavior, and other social learning theories [7].

Social cognitive theory is grounded in the belief that humans are unique in our ability to symbolize experiences, to develop forethought about consequences for our actions, to learn vicariously through the actions of others, to be able to change our behaviors through self-regulation, and to self-reflect. Bandura is most widely known for his contributions of reciprocal determinism [2] and self-efficacy [1].

Reciprocal Determinism

One unique contribution to the social-cognitive framework is the concept of *reciprocal determinism* (also called *triadic reciprocality*). Other theorists have speculated about the role personal factors (cognition, affect, and biological events) and environmental factors (both social and physical) play in the human behavior. However, Bandura's theory proposes complete interactionism among personal factors, behavior, and environmental factors, whereby people are both products and producers of their environments and social systems. In this model, not all sources of influence are equally strong. Additionally, the effects are not always seen immediately, but may develop over time (Fig. 1).

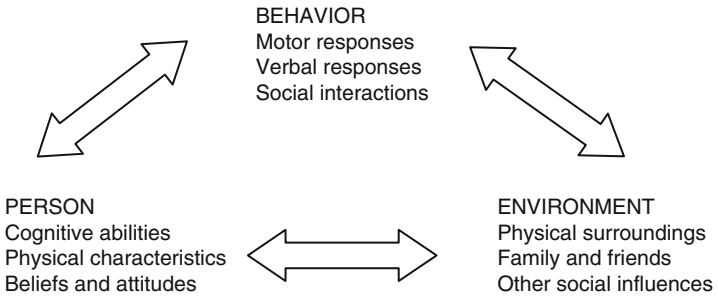
Self-Efficacy

Self-efficacy beliefs are judgments people make about their ability to do something. Self-efficacy beliefs are not global – they are task-specific and may change depending on contextual factors. According to Bandura, "people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" ([5], p. 2). Self-efficacy beliefs are established through four sources of information and they are most easily shaped during the development of self-beliefs. It is much harder to change a person's self-efficacy beliefs once they have become firmly established.

Mastery experiences provide the most authentic evidence of whether or not a person can perform a task. If a task has been successfully performed in the past, it increases the likelihood that a person may be able to do it again in the future. How a person remembers experiences is also important. If a person selectively remembers the one mistake made in an event that was successful overall, it can negatively affect the person's efficacy for that task. Alternately, remembering the accomplishments made in a task that was not successful can improve a person's efficacy for the task. Mastery experiences and their interpretation are particularly important when developing self-efficacy for a task. However, once self-efficacy beliefs have become firmly established mastery experiences become less important.

Vicarious experiences allow a person to learn a novel behavior without performing it. Vicarious learning is less powerful than mastery experiences in creating self-efficacy beliefs, but it is useful when a person has little prior experience and when a person is unsure of their ability. In some cases, vicarious learning serves to protect people from harmful behaviors. For example, the consequences of a motorcycle accident in which the driver was not wearing a helmet or protective clothing is likely to affect the future safety behaviors of other motorcyclists who witnessed the event. In other cases, it allows us to learn situational social norms. For instance, weather to raise one's hand in the classroom to get permission to use the restroom or if it is acceptable to discreetly leave without overt permission.

Vicarious learning also allows a person to assess their task capabilities in relation to the attainment of others. Self-efficacy for a task is most strongly influenced when the models are people relatively similar to one's self. For example, watching someone else learn how to swim may increase a person's belief that they too, can learn how to swim – particularly if there are other commonalities such as age and gender. This experience would likely have a stronger impact on one's efficacy beliefs about learning to swim than watching Olympian Michael Phelps win a gold medal. Vicarious learning is also often referred to as modeling or observational learning.



Social Cognitive Learning Theory. Fig. 1 Reciprocal Determinism.

Social persuasion also contributes to the development of self-efficacy beliefs. This happens when other people provide verbal judgments about one's ability. When others cultivate positive beliefs combined with realistic assessments of success, the social persuasion can encourage positive self-efficacy beliefs. However, negative appraisals can serve to weaken self-efficacy beliefs as well.

Physiological and affective states, including anxiety, stress, and moods also provide information about efficacy beliefs because they provide cues about anticipated success or failure. Low self-perceptions may trigger more stress or anxiety about a performance, which can lead to a negative outcome. Negative affective states also divide a person's focus. By focusing on feelings such as an upset stomach or tension, focus is directed inward and taken away from task performance. Alternately, if a person feels confident in their ability to perform a task, they are likely to have lower stress and anxiety and be able to focus completely on the task without diverting attention to inner feelings.

It is the combination of the information and interpretation (e.g., symbolization, self-reflection) of that information that contribute to judgments of self-efficacy.

Relevance to Childhood Development

Social cognitive theory continues to be a useful lens through which to explore child development and provides an alternate explanation to Piaget's stage theory of cognitive development. Social cognitive theory uses reciprocal determinism as a way to explore cognitive and linguistic aspects of development. It also contributes to the fields of cognitive-behavioral therapy and healthcare [4, 6].

Bandura's famous bobo doll experiment in the early 1960s demonstrated the powerful effect of behavior modeling on children. The experiment demonstrated that children who witnessed aggressive behaviors by adults (particularly when the aggression was demonstrated by the same gendered adult) were more likely to demonstrate those behaviors than children who did not witness aggressive behaviors. Currently, Bandura's work is often used as a foundation for research on violence in the media. He asserts, however, that the social impact of observational learning is largely a function of a person's exposure to other information about reality. The more a person's image of reality depends on the media's symbolic environment, the greater the social impact [3, 9].

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Social Communication

►Pragmatics

Social Competence

►Conformity Among Adolescents

Social Construction of Memory

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Definition

Theoretical perspective in which memory is created by collaborating with and observing others.

Description

Social construction of memory has its roots in social cognitive theory that includes a blend of ideas from behaviorism and cognitive psychology. Albert Bandura [4–6, 8–10] is the main architect of the theory as it pertains to learning, and he explains that when students learn, they cognitively represent or transform their experiences. Five major assumptions of social cognitive learning include learning by observing, learning as an internal process that may or may not be reflected in behavior, goal directed behavior, self-regulated behavior, and indirect effects of reinforcement and punishment [15]. According to social

cognitive theorists (e.g., [3, 4]), both reinforcement and punishment influence learning, behavior and memory in several ways.

First, children form expectations about the likely consequences of future responses based on how they remember previous responses as reinforced or punished. Secondly, children's expectations are influenced by their observations of the consequences that follow other peoples' behaviors, in other words, by vicarious experiences. These expectations or memories regarding probable future consequences affect how children cognitively process new information and store it into memory. These memories alter children's expectations and also influence their decisions about how to behave.

Some examples of social cognitive learning that create memories in children include observational learning and/or modeling.

Observational learning involves acquiring skills, strategies, and beliefs by observing others. It involves imitation but is not limited to it. What is retained or remembered typically is not an exact copy of what is modeled, but rather a general strategy that the observer often applies. The capacity to learn behavior patterns by observation and modeling eliminates trial-and-error learning. Models can be live or symbolic, and teach children all sorts of behaviors. Considerable research has been conducted concerning the impact of modeling in three areas: academic skills, aggression, and morality.

Academic skills are learned by children more effectively when others demonstrate how to do something and how to think about something. In other words, a teacher might use cognitive modeling to show the thinking processes involved in a long division problem, thus making the information more meaningful and easier to retrieve from memory later on.

Numerous studies indicate that children become more aggressive when they observe aggressive or violent models [2, 12, 13]. Whether children learn aggression from live or symbolic models they see in person, or in films, on television, or in video games [1], their imitations take the remembered forms as the aggression they have seen and processed [7, 14].

Many aspects of moral thinking and behavior are influenced by observation and modeling. Children watch, retain to memory, and mimic examples of moral judgment, sympathy, sharing, and generosity [11]. Children who watch generous models are more likely to donate their time or possessions than children who observe selfish models. Even in cases where an experiment is repeated months afterward, children repeat the behavior from the initial session because it has been committed to memory.

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Social Constructionist

►Family Therapist

Social Constructivism

►Constructivist Psychotherapy

Social Decision Making

►Social Problem Solving

Social Discourse

►Pragmatics

Social Environment

►Classroom Climate

Social Group

►Peer Group

Social Identity

►Identity

Social Influence

►Conformity Among Adolescents

Social Information Processing

►Social Problem Solving

Social Intelligence

►Emotional Intelligence

Social Language

►Pragmatics

Social Learning

►Learning

Social Learning Theory

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Synonyms

Imitation; Modeling; Media influence; Observational learning; Social cognitive learning theory

Definition

Social learning theory states that norms, attitudes, expectations, and beliefs arise from an interaction with the cultural or social environment around an individual.

Description

Albert Bandura, the leading theorist in social learning theory, proposed that people learn from their observations of individuals or models. Bandura believed that behavioral theories presuming that environment determines one's behavior were too simplistic in nature. In response he presented the idea of reciprocal determinism, meaning the environment and one's behavior cause each other. As the theory developed the term prosocial behavior was coined. Prosocial behavior has been defined by theorists as "helping behavior that benefits others" [3]. The premise behind social learning theory, unlike operant or classical conditioning, is that the behavior does not have to be performed or reinforced directly for others to benefit from the positive reinforcement. Children learn behavior by observing others or ►models, and if the models receive positive reinforcement for their actions, the observers seek to imitate the behavior in order to obtain the positive rewards as well. However, the behavior modeled does not have to be positive for the observer to imitate it. Positive *and* negative behavior can be socially learned. In order for the behavior to be repeated several conditions are necessary. First, the

observer must pay attention to the behavior of the model. Secondly, the observer must recall or remember the behavior. Subsequently, the observer must reproduce the behavior accurately and finally the observer must be motivated to learn and carry out the behavior.

Current Research

While in the past Bandura's theory has primarily been applied to parents, teachers, peers and other authority figures as models, one of the greatest sources for observational learning is the media. For example, studies have found that the concept of social learning is at play in the smoking behaviors of adolescents. According to a study by [2], a correlation between smoking in the movies and adolescent smoking behaviors exists. Additionally, images in the media are modeling certain behaviors that are proving to be detrimental to teenage girls and in some instances boys. Numerous studies have been conducted on the influence of the media on body image. [7], found that "exposure to idealized images (in the media) led to increased body shame and appearance anxiety" (p. 89). In sum, current literature clearly indicates that the media significantly influences society in various facets of life ranging from smoking to body image.

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Social Perspective Coordination

►Perspective-Taking

Social Phobia

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Synonyms

Social anxiety; Social anxiety disorder

Definition

According to DSM IV [3] social anxiety disorder is "a marked and persistent fear of one or more social performance situations in which the person is exposed to unfamiliar people or possible scrutiny by others." It is a disorder with a very broad range of implications as most of our daily activities revolve around social encounters. It is especially debilitating because seemingly routine tasks become an ordeal for the individuals suffering from the disorder.

Description

Social phobia is a common disorder with vast implications; its effects range from interpersonal problems to inability to meet developmental milestones. The socially anxious youth struggle with the inherent anxiety as well as the social implications of their anxious behavior.

Ford [6] in a personal account of social phobia described her experience in the following way

> In first period chemistry, I was up to my ears in dread-dread of having to say 'here' when my name was called, of getting back yesterday's assignment, of looking as if I didn't fit in. I glanced around the room to compare my notebook, pencils, clothes, jewelry, hairstyle, backpack, and pile of textbooks with everyone else's. The corners of my notebook lacked the lazy scribbles from a friend.

Imagine a young person going through the day this way with a pervasive sense that all eyes are on her. Socially phobic youngsters believe they are on display and any mistake or flaw is readily apparent. Further, they predict that others will ridicule, embarrass, and humiliate them due to this flaw. It is like stage fright gone terribly awry. Indeed, this is a distressing experience.

Social phobia is a prevalent and debilitating condition. Beidel and Turner [5] report prevalence rates of approximately 8% for children and 4% for adolescents. Additionally, they cited data indicating that between 15 and 18% of

children referred to an anxiety disorder clinic were diagnosed with social phobia. Social phobia transcends normal shyness and is marked by young people's profound dread of social/performance situations where unfamiliar people are present and may negatively evaluate them. Finally, social phobia compromises children's emotional well-being, completion of developmental tasks, and academic achievement.

Signs and Symptoms

The DSM-IV [3] defines the essential feature of social phobia as "marked and persistent fear of social and performance situations in which embarrassment may occur." Social phobia may be specific or generalized in which case fears are related to most social situations. Thus the symptom profile is vast and encompasses a large variety of presentation styles. For the purpose of clarification, the symptoms are divided into the following categories:

Physiological/biological: Socially anxious youth experience somatic arousal while engaging in or anticipating social encounters. The salient features are physical symptoms such as heart palpitations, flushing or chills, trembling, sweating, blushing, fainting, shaking and headaches; mediated by the beta-adrenergic system [9].

Behavioral: Behavioral symptoms include hallmark avoidance behaviors such as shying away from typical childhood activities (parties, dating, sports, school, clubs, etc.). Avoidance behaviors may be overt, dramatic or subtle. Generally unstructured social and/or evaluative situations and encounters precipitate avoidance behaviors [1]. These may include refusal or avoidance of eating or drinking in public, initiating or maintaining conversation, and avoiding using public restrooms. Moreover, worry about taking tests, giving oral reports in the classroom, participating in gym as well as working in groups is typical behavior for these children and adolescents [6]. Socially anxious youth are reluctant to seek help from their peers or teachers [1]. Other likely behavioral manifestations include stuttering, poor eye contact, mumbling, nail biting, and a tremulous voice. Socially anxious youth frequently avoid answering the telephone or doorbell [1]. Moreover, many children and adolescents preoccupy themselves with hobbies reflecting isolative interests which are different from those of their peers. Finally, children with severe social fears act stubbornly, oppositional, non-compliant, and occasionally they become outright defiant [9].

Cognitive: Cognitive content reflects the way youngsters mentally package their experiences. Fears of negative evaluation mark socially anxious youth's cognitive content. They predict others will harshly judge them ("They will think I am a dork") and dread potential embarrassment / humiliation ("They'll see me blush and mock me"). Cognitive content may include thoughts of escape from the social situation ("The best way to cope with my anxiety is avoid it"), lower perception of social competence ("I'm not one of the cool kids. I don't fit in."), and self criticism ("I'm a misfit").

Developmental factors must be considered when evaluating a child or adolescent [9]. The capacity to express cognitive content of the disorder may be correlated with psychological maturity and mediated by chronological age. Older and emotionally sophisticated children may be better able to put their thoughts into words and describe their cognitions.

Emotional: Emotional symptoms generally include sadness, excessive worries, irritability, social distress, poor self esteem, feelings of inadequacy in interpersonal relationships and high degree of loneliness [5].

Interpersonal

Typical interpersonal symptoms include restricted peer interactions, fewer friends, social withdrawal, reluctance to participate in family gatherings and social isolation. Finally, the play activities of these individuals are sometimes unusual which further socially isolate them. This lack of common interests may be because of limited opportunities for social interactions due to their social anxiety and avoidance [5].

Treatment

Pharmacological Treatment

Currently, ▶selective serotonin reuptake inhibitors (SSRIs) are the mainstay of pharmacological management for youth. Currently available SSRIs include Fluvoxamine (Luvox), Fluoxetine (Prozac), Paroxetine (Paxil), Citalopram (Celexa), Sertaline (Zoloft), and Escitalopram (Lexapro).

Behavioral Treatment

Social Effectiveness Therapy for Children (SET-C) is a comprehensive behavioral treatment modality which has been specifically designed to reduce social anxiety and enhance children's interpersonal social skills. SET-C focuses on helping children reduce their avoidant and inhibitory behaviors in socially evaluative and interpersonal contexts. SET-C consists of social skills training (SST), Exposure and programmed practice with peers to provide real life coping experience [5].

Cognitive Behavioral Treatment

Cognitive behavioral therapy is a form of psychotherapy which hypothesizes that individuals' problematic emotions and dysfunctional behavior is shaped by misinterpretations of themselves, other people and their experiences. The most widely used CBT protocol for childhood anxiety is Phillip Kendall's Coping Cat Program [8]. This protocol is administered for children ages 7–16 years. The approach can be utilized for both individual and group treatments.

Albano et al. [2] adapted group cognitive behavioral therapy for adolescents ages 13–17, which involves 16 group sessions incorporating psycho-education, skills training and behavioral exposure.

Conclusion

Social phobia is a common and complex disorder which comes at considerable costs to young people. Proper identification and treatment is crucial. Fortunately, there are multiple promising therapeutic options. Hopefully, future research will facilitate advances in the detection and treatment of social phobia.

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Social Practices

▶Cultural Bias

Social Problem Solving

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Synonyms

Interpersonal cognitive problem solving; Interpersonal problem solving; Social decision making; Social information processing

Definition

Social problem solving is the process by which individuals identify and enact solutions to social life situations in an effort to alter the problematic nature of the situation, their relation to the situation, or both [7].

Description

In D'Zurilla and Goldfried's [6] seminal article, the authors conceptualized social problem solving as an individuals' processing and action upon entering interpersonal situations in which no immediately effective response is available. One primary component of social problem solving is the cognitive-behavioral process of generating potential solutions to the social dilemma. The steps in this process were posited to be similar across individuals despite the wide variability of observed behaviors. The revised model [7] is comprised of two interrelated domains: problem orientation and problem solving style. Problem orientation describes each individual's meta-cognitive schema, which tends to be a stable approach to understanding problems. Problem orientation has been defined in two primary ways, positive and negative. Individuals with a positive problem orientation believe that problems are challenges to be solved rather than threats. This positive orientation has been associated with more rational and adaptive problem solving efforts and adjustment. In contrast, a negative orientation is

characterized by beliefs that social problems represent major threats to well-being, that one lacks self-efficacy to solve problems, and that one will experience emotional distress when confronted with problems. This negative orientation has been associated with dysfunctional social problem solving styles and problems in adaptation (i.e., anxiety, depression, and conduct problems).

The cognitive and behavioral skills that comprise individuals' general responses to stressful or novel problems characterize their problem solving style. The three styles outlined by D'Zurilla and colleagues [6, 7] include rational, impulsive/careless, and avoidant styles. Classification into a problem solving style is based on the utilization of the four major problem solving skills: problem definition and formulation, generation of alternative solutions, decision making, and solution implementation and verification. Rational problem solving is characterized by a planful and systematic use of these skills to solve problems. In contrast, impulsive/careless and avoidant styles are considered dysfunctional because individuals classified into these categories do not systematically process each step of the model. Instead, the impulsive/careless problem solving style attempts to utilize problem solving strategies, but does so in an incomplete and inadequate manner. The avoidant problem solving style is characterized by passivity, procrastination, and avoidance.

The model presented by D'Zurilla and Goldfried was primarily developed with attention to adult problem solving processes to explain variations in social behavior. Their model was applied and expanded by Spivack and Shure [14] to explore developmental factors that influence problem solving. The authors examined social problem solving (called interpersonal cognitive problem solving skills) that would distinguish maladjusted children from their well-adjusted peers. Spivack and colleagues [13, 14] posited several prerequisite cognitive skills that were necessary for effective problem solving; specifically, the abilities to consider step-by-step plans, think causally, develop alternative solutions, anticipate consequences, and understand the motives of others. In a series of studies, Shure and Spivack [13, 14] identified the relationship between interpersonal cognitive problem solving skills and normative age-related changes. Moreover, the authors illustrated that deficiencies in these skills were related to problematic social skills, impulsiveness, and withdrawn behavior in preschool to elementary school aged children [13].

Crick and Dodge [3] provided a comprehensive review and model of the social cognitive processes leading to maladjustment in childhood. Again, these authors proposed that when faced with a social problem, children engage in a number of steps before implementing a response and that differences in these processes may account for the differences observed in children's social behavior. Similar to the D'Zurilla and Goldfried model, Crick and Dodge [3] suggested the essential steps in social problem solving included encoding the problem, interpreting cues in the social situation, clarifying goals, generating possible responses, selecting a response, and enacting the behavior. In an important distinction from the D'Zurilla and Goldfried model, the authors suggested that differences in processing styles may be most predictive of differences in social behavior and could be illuminated at each step in the problem solving process. The Crick and Dodge reformulation included an explicit emphasis on the importance of the interaction between individuals' internal processes, developmental changes (i.e., increased in experiential knowledge; improved attention, memory, and organization; and increased speed of processing information) and environmental factors on problem solving efforts (e.g., emotion processes; access of social scripts, schemas, and knowledge in memory).

In a model similar to Crick and Dodge's [3] reformulation, Rubin and Krasnor [11] focused on the development of automaticity to account for the stability and change in the development of social behavioral patterns. Specifically, the authors suggested that children learn standard scripts for common and routine social situations. The scripts are stored and cued by internal or external stimuli and are easily and unconsciously accessed in familiar social situations. However, when in novel situations, situations that violate expectations, and situations that have been unsuccessful in the past, children are required to deviate from script-driven behavior. Rubin and Krasnor classified such situations as "social problems." Once a social problem is encountered, children must select the social goal, examine the task environment (the social status, familiarity, type of relationship, age of others); generate, retrieve strategies, and select strategies (automatic or deliberate), implement a strategy, and examine the outcome.

The four models presented for social problem solving have several common elements. The seminal social problem solving model [6] and the revised models all share core steps in the problem solving process, including recognizing the problem, generating alternatives, deciding on an action, and implementing the action.

Relevance to Childhood Development

Development of Social Problem Solving Abilities

The attention to developmental factors highlighted by Spivack and Shure [14], Crick and Dodge [3] and Rubin

and Krasnor [11] represent significant steps toward understanding social problem solving processes in youth. The majority of research has emphasized the importance of social influences on the development of effective social problem solving skills. The following sections describe influences including attachment relationships, parenting practices, and peer influences, and cultural context on these skills.

Socialization

Attachment and Parenting

Classic attachment theory emphasizes the importance of children's relationships with their primary caregivers and the manner in which those relationships affect future relationships [1]. In the attachment framework, early relationships provide children with internal working models, which serve as guides for subsequent social interactions. Applied to the study of social problem solving, secure attachments have been frequently emphasized as essential to the transmission of social information and the development of effective and appropriate levels of independence and social competency [12]. Within the context of their attachments to caregivers, children are believed to engage in social learning processes (e.g., observation of models) through which they internalize strategies for managing ambiguous social situations. It has been suggested that secure attachments are more likely to foster adaptive social problem solving, whereas insecure attachments may be associated with maladaptive strategies [12].

Although few data are available to elucidate the relationship between child attachments and social problem solving, a significant body of research exists to support a more general connection between parent–child relationship patterns and children's social competence, with maternal nurturance and authoritative parenting correlated with prosocial problem solving skills [9]. Significant parental stressors, such as parental psychopathology (e.g., depression), may also negatively impact child adjustment by interfering with effective parenting behavior [5].

Peer Influences

Beyond the home environment, various aspects of children's broader social ecologies appear to be linked to social problem solving abilities. Socially accepted, rejected, and neglected children differ in their social problem solving abilities at each step of the social problem solving process. Research has documented that children who experience relational problems have difficulties interpreting the actions of their peers, when compared to socially-accepted children [3]. Indeed, socially-rejected children appear more likely to make attributional errors regarding peers' intentions in social situations and are more likely to infer hostile or negative intent. When generating behavioral response options, children who experience social rejection are also more likely to identify avoidant or aggressive strategies to solve social problems. In contrast, socially-accepted children tend to generate behaviors that are competent and effective rather than incompetent or aggressive.

Community and Cultural Context

Beliefs about the appropriateness of different problem solving strategies are also rooted in community norms and cultural values related to assertiveness and individualism. Relative to more individualistic cultures, adolescents living in cultures that endorse collectivistic values may be more likely to use the tactic of withdrawing to deal with social conflicts. In addition, experiences such as exposure to community violence have been associated with beliefs about the appropriateness of aggressive problem solving strategies. Nevertheless, the extent to which aggressive responses are actually detrimental to youth functioning may be moderated in part by the cultural acceptability of aggression versus disengagement as a problem solving strategy [2].

Relationship Between Social Problem Solving and Psychopathology

There is a substantial literature investigating the interrelationship between social information processing, effective social problem solving, and adjustment across development. Specifically, both internalizing and externalizing type childhood disorders have been found to have elements of ineffective social problem solving skills. Disorders such as oppositional defiant disorder, conduct disorder, and depression have been found to be associated with unique pathways in the development of social problem solving deficits. In the following sections, the primary disorders will be discussed as well as potential treatments targeting these deficits.

Externalizing Disorders

Research investigating the social problem solving abilities of children with externalizing disorders and maladaptive behaviors found in non-clinical samples, including aggression, delinquency, and substance abuse support the notion that these problems are associated with a variety of deficits in implementing each step of the social problem solving process. Specifically, aggressive children, when compared to non-aggressive children, demonstrate deficits in encoding social cues, and a "hostile attribution bias" in which they tend to attribute hostile intent in ambiguous

situations [8]. Moreover, aggressive children tend to generate fewer and lower quality solutions to social problems and evaluate aggressive solutions as more effective.

As the reviewed literature illustrates, aggressive behavior is associated with a variety of deficits in each of the social problem solving steps; however, research suggests that the relationship between social problem solving and aggression may be dependent on whether the aggression is reactive or proactive. Research that has examined subtypes of aggression has found that reactive-aggression is associated with deficits in the earlier steps of social problem solving, including deficits in encoding of cues and increased rate of hostile attributions, whereas children with proactive aggression were not found to have such deficits [4].

Internalizing Disorders

Research on child depression has suggested that depressed children exhibit less effective social problem solving than their non-depressed peers across most steps in the social problem solving process. Studies indicate that depressed children may experience difficulties with correctly encoding relevant information about the problem, exhibit a negative problem orientation, generate fewer solutions and problem responses that are less assertive and irrelevant to the problem, and evaluate ineffective solutions (e.g., withdrawal) more positively than do their non-depressed peers [10].

Social problem solving abilities have been investigated to a lesser extent in anxious children. However, the literature suggests that early fearful and isolative behaviors are significantly associated with less flexible problem solving style and greater use of adult resources rather than using independent strategies [12].

Intervention

Social problem solving has been a primary focus of childhood intervention since D'Zurilla and Goldfried [6] proposed their initial model. The basic problem solving framework has been applied to teach problem solving skills as a means of clinical intervention as well as prevention of future deficits. Although each of the social problem solving interventions is uniquely designed to address the needs of specific groups across distinct developmental stages, a common element among the interventions is explicit teaching of the problem solving steps. Many of the programs use developmentally appropriate teaching strategies that include skill modeling by an adult leader, opportunities for children to role play the newly learned skills, opportunities to practice the skills in vivo, and feedback when skills are implemented.

Prevention Programs

The majority of prevention programs are implemented in the school setting with small groups of children. To enhance efficacy of treatment, parents are typically involved in the programs. The Interpersonal Cognitive Problem Solving Program, Promoting Alternative Thinking Strategies (PATHS), Social Relations Program, and The Coping Power Program prevention treatments are empirically supported and have been shown to result in significant improvements in children's social problem solving abilities following the intervention.

Clinical Interventions

Unlike prevention programs, clinical interventions provide treatment for targeted clinical groups. These interventions have included multimodal approaches, which incorporate problem solving skills training (PSST) as a component of a broader intervention, as well as other more "pure" social problem solving therapies that primarily target deficits in social problem solving skills. PSST and Incredible Years Classroom Social Skills and Problem-Solving Curriculum are two empirically supported intervention programs that rely on social problem solving techniques as a core component. A variety of other interventions have also incorporated components of social problem solving into their treatment approach.

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Social Referencing

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Synonyms

Joint attention

Definition

Social referencing refers to the process wherein infants use the affective displays of an adult to regulate their behaviors toward environmental objects, persons, and situations. Social referencing represents one of the major mechanisms by which infants come to understand the world around them.

Description

In the last quarter of the first year, infants become capable of integrating interpersonal communication with objects and situations in the environment. Infants in this period are capable of viewing their parents as teachers and sources of knowledge about the environment; thus, there is true two-person communication about third events, including people and objects in the environment, which yields meaning about the world to the infant [2]. With newly acquired knowledge about environmental events, infants are capable of regulating their behaviors toward people and objects in accordance with the appraisals given them by caregivers.

Social referencing is perhaps the emotional cornerstone of this developmental period because it both broadens and deepens the infant's emotional life [3, 11]. Social referencing refers to the process wherein infants use the affective displays of an adult to regulate their behaviors toward environmental objects, persons, and situations [1]. In one of the most common paradigms used to study social referencing, an ambiguous and novel object is introduced to infants between the ages of 9 and 18 months. Upon the introduction of the object, an adult emotes, via facial and vocal modalities, either a positive or a negative signal to the infant. Of interest is (a) how the child's emotional displays are regulated and (b) how the child's instrumental behaviors, such as reaching, are regulated as a function of the adult's emotional displays. If, for example, a mother displays disgust in relation to a novel object, an infant tends to avoid the object and express negative emotions, but in the context of a happy display from the mother, the infant tends to readily approach the object [2]. Social referencing represents one of the major mechanisms by which infants come to understand the world around them [2].

The most powerful regulatory effects of social referencing were demonstrated using a visual cliff paradigm [8]. In this experiment, the investigators placed the infant on the shallow side of a visual cliff, and the mother stood at the deep side (30 cm) in front of the infant. The mother coaxed the child to the edge of the cliff and when the infant looked up at her, she posed 1 of 5 facial displays (happy, interest, fear, anger, and sad). When 12-month-old infants approached the edge of the cliff and saw their mothers pose a "fear face," none of the 17 infants crossed, and when they saw an "angry face" only 2 infants crossed. In contrast, 14 of the 19 infants in the happy face condition and 11 of the 15 infants in the interest condition crossed the cliff after referencing their mothers. Finally, infants showed mixed responses to their mothers' sad facial displays (6 of the 18 infants in the sad face condition crossed the cliff, the other 12 infants did not).

The findings concerning the regulatory effects of a variety of emotions on infant behavior in social referencing paradigms have been extraordinarily consistent [2, 7]. Four general conclusions emerge from the literature. First, the emotional expressions of others appropriately elicit approach and withdrawal behavior in a variety of settings. Second, vocal expressions alone, and together with the face, regulate infants' behaviors more powerfully than facial expressions alone [6, 7, 10]. Third, negative emotional displays elicit withdrawal from objects more readily than displays of joy elicit approach [3, 6, 9]. Finally, infants regulate their behavior in accordance with emotional displays from either the mother or another adult [4, 5].

In sum, social referencing represents one of the most significant milestones of emotional development in infancy. Many questions remain unanswered, however. For example, how does social referencing develop

over time? What individual differences exist in social referencing? What cognitive and perceptual skills enter into the development of social referencing? Future research holds the key to these questions.

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Social Responsibility

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Synonyms

Citizenship; Public duty; Societal obligation

Definition

An ethical theory in which it is believed that those in need of assistance should be helped, even if the costs outweigh the benefits. The theory also conveys the belief that every individual has the responsibility of acting when a need for help arises, because it is in the best interest of society.

Description

The social responsibility norm is an expectation that if help is needed, it is the responsibility of anyone who sees that need to provide help regardless of potential risks to the person helping. Thus, helping others is seen as a social responsibility, and if properly carried out will ultimately be in the best interest of the society as a whole.

Relevance to Childhood Development

Social responsibility is an idea that is taught to children at a very early age. Whether it is through a religious affiliation, a school, or a club, community service is very much encouraged. Volunteering within the context of community service may instill work ethic and promote a sense of appreciation. Social responsibility taught at a young age could potentially prepare children for greater academic and career opportunities as adults, as universities and employers tend to seek appreciative individuals who are willing to work hard and contribute to the larger community.

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Social Skills

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Synonyms

Interpersonal skills; Pragmatics

Definition

A set of verbal and nonverbal behaviors, cognitive and language abilities, and attention that facilitates situation specific, appropriate and reciprocal interaction and communication with others.

Description

Social skills are culturally specific behaviors, learned over time, that are influenced by group membership, environmental factors, social status, and individual characteristics, as well as reinforcement or lack of reinforcement from others. The interactive and reciprocal nature of social skills suggests a developmental learning process to obtain social skills. Social skill difficulties can be skill based (lack of learning of appropriate skills) or performance based (inability to apply previously learned skills appropriately).

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Social Skills Training

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Synonyms

Natural environment training

Definition

Social skills training is comprised of techniques and methods utilized to assist individuals with various social interaction deficits.

Description

Social skills training is an area of behavior modification therapy, utilized by educators and therapists, to strengthen socialization and play skills required to succeed in a social environment. This type of treatment, also known as natural environment training, provides a setting similar to those found in scholastic programs allowing for a higher probability of generalizing skills [1]. Many individuals benefit from social skills training; however, these programs are particularly designed for individuals with attention deficit disorders, autism spectrum disorders, psychiatric conditions and learning disabilities. Within these disabilities, training focuses on deficits in generating and maintaining social relationships with peers [3]. Other deficits include a low level of social interactions, few initiations in conversations or compliments, lack of orientation towards peers, and minimal eye contact [1].

The level of training and types of techniques utilized in social skills programs vary depending on the deficits of the individual and training of the professional. Common similarities between programs involve specializations in social interactions, communication, eye contact, conversation skills, verbal and nonverbal social cues, and conflict resolution skills [3]. These programs are taught within individual or group treatment sessions. Individual social sessions focus on strengthening environmental social skills or skills required to participate in an academic program. Examples include listening, eye contact, and following group instruction. Group social sessions strengthen social interaction skills or skills that generate and maintain conversations and communication. Within these two treatment categories, several methods are utilized to focus on individual skill deficits. School programs, play dates, peer modeling, peer tutoring, sibling training, video feedback, social stories, social songs and social scripts are a few of the many components of social skills treatment [2].

Research studies have indicated social skills training programs to have a positive influence on social interactions and communication in individuals with social deficits [4]. Further studies have indicated that individuals with untreated social deficits may develop depression and a lack of responsiveness to peers. Within adulthood, deficits maintaining intimacy and relationships with individuals develop resulting in loss of friendships, limited employment opportunities, and eventual isolation.

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Social System

▶Family Therapist

Social Thinking

►Social Cognition

Social Validity

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Synonyms

Acceptability; Intervention satisfaction; Subjective assessment

Definition

Social validity refers to the acceptability of and satisfaction with intervention procedures, usually assessed by soliciting opinions from the people who receive and implement them.

Description

Intervention procedures for child behavior are socially valid when people judge them as being acceptable. Typically, social validity assessment is conducted by questioning the recipients of intervention and the individuals responsible for procedural implementation. For example, a child who receives a school-based intervention might be asked about the appropriateness of the procedures that were used by the classroom teacher (e.g., did they make the student "stand out" among other students?). In turn, the teacher might be queried about the complexity of the intervention procedures, time required for implementation, and satisfaction with the outcome. The information gathered from social validity assessment enables professionals to select intervention procedures that will be well received and in consequence, will be applied accurately.

Social validity assessment can be conducted through interviews, surveys, and rating scales. Questions usually are posed with a positive valence such as, "The classroom plan I used with John helped him complete more academic assignments." Respondents reply to such questions by endorsing one of several numerically anchored options: (1) I strongly disagree, (2) I disagree, (3) I have not opinion, (4) I agree, (5) I strongly agree. An average score is derived as a global measure of acceptability and satisfaction.

There are other areas worthy of social validity assessment. For example, the consumers of intervention may be asked to what extent the selected objectives are consistent with community standards (*norm referenced criteria*). Or, experts in a particular area of child development may be requested to comment about the purpose and components of an intervention plan (*expert validation*). Finally, professionals have been advised to correlate the results of social validity assessment with direct measurement of observable behaviors.

Relevance to Childhood Development

Parents, teachers and therapists are frequently given advice about child development. The effectiveness of recommended child rearing practices notwithstanding, it is desirable to know whether the methods suggested by professionals are judged positively by consumers. Procedures with poor acceptability will likely not be adopted. Other procedures may be implemented successfully but judged poorly because they are too difficult to apply consistently. Accordingly, validating the social acceptability of procedures should be an emphasis in the child development literature.

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Social Withdrawal

►Shy Children

Socialization

►Cultural Transmission

Societal Obligation

►Social Responsibility

Society for Research in Child Development

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Definition

The Society for Research in Child Development (SRCD) is an international organization for researchers and practitioners working in the domain of child development. SRCD, as a not-for-profit entity, seeks to support communication and cooperation among professionals across different disciplines to serve the promulgation of research on development and its utilization to address child welfare issues [5]. The organization sponsors a biennial research conference during odd numbered years and publishes several highly regarded journals and a newsletter, including *Child Development, Child Development Perspectives, Monographs of the Society for Research in Child Development,* and *Social Policy Report.*

Description

SRCD was founded in 1933, with Robert S. Woodworth as chairman [3]. It evolved from and later replaced the Committee on Child Development (CCD), which had been founded in 1924 as an offshoot of the National Research Council [4]. Numerous societal factors converged to influence the formation of an organization devoted entirely to research with children. First, the social sciences were now recognized within academics [4] and several notable figures in the field, such as Sigmund Freud, John Watson, Jean Piaget, and Arnold Gesell were proposing theories and completing research that had important implications for child development [2]. Second, during the early 1900s following World War I, public and government attention had shifted to exploring the childhood contributions for why many youth had been disqualified from enlisting in the armed forces due to physical or mental concerns [1]. Finally, during this early period private funding sources and public focus turned to preventative measures to reduce social problems and a new mission to enhance the health and well-being of children [4].

Until the formation of the CCD, the topic of child development was not considered to be a legitimate scientific pursuit across many different disciplines. Thus, the formation of an organization devoted exclusively to research and early recruitment that focused on increasing male membership was one way to prioritize and elevate the study of children into the sphere of science, rather than laypeople's interest [1]. After the formation of CCD, interest in child development grew, as did the membership and productivity of the committee [5]. Despite this successful beginning, the onset of the Great Depression reduced the availability of funding, new child-focused organizations began to compete for recognition, and disagreement occurred within and outside the committee regarding scope and purpose [4]. The founding of SRCD represented a recommitment by CCD members to child development topics, in addition to a new agreement by members that research and application are inseparable [3].

Since its inception, SRCD has grown and changed in membership, productivity, and scope, becoming a premiere multidisciplinary association for the study of children. From an initial group of 125 people [3], the organization now claims a national and international membership of approximately 5,500 professionals who pay its annual dues [5]. Although still committed to the interdisciplinary investigation and application of developmental issues, the composition of SRCD membership has changed drastically. From initial demographics at inception indicating only 25% of members identified as psychologists, current members are overwhelmingly represented from the field of psychology [2]. Within the realm of publication, SRCD at its founding had acquired journals in danger of discontinuation and frequently needed to implore members to submit articles for publication [3]. As of 2002, given the influx of publications, *Child Development* no longer had to ask for articles and instead demonstrated a 75% rejection rate [2]. In addition to furthering these initial goals, SRCD has also expanded its interests to include a focus on diversity in both membership and research population, taken a major role in national policy development on children's issues, and remains a leader in formulating and imposing ethical guidelines for research on a child population [5].

Relevance to Childhood Development

SRCD remains a central source for the sharing of research results for all fields within the scope of child development and the cooperation of the professionals involved. In addition to encouraging research through funding, publications, and conferences, SRCD is concerned with transmitting the newest in research results to inform the public and benefit children around the world.

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Socio-Dramatic Play

►Dramatic Play

Sociometric Techniques

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Definition

Sociometric techniques are methods that qualitatively measure aspects of social relationships, such as social acceptance (i.e., how much an individual is liked by peers) and social status (i.e., child's social standing in comparison to peers).

Description

Sociometric techniques have been used since the 1930s, when Moreno proposed that two dimensions of interpersonal relationships (attraction and repulsion) and the perceptions of individuals involved in relationships combined in various ways to determine nine dimensions of interpersonal relationships (e.g., attracted, attractive, rejected, isolated) [10]. Over subsequent decades, statistical techniques became more complex, and there was increasingly recognition of the importance of distinguishing between the low status categories of rejection and neglect. An important advance in sociometric measurement occurred in 1979, when Peery proposed a classification system that included both social preference (i.e., liking) and social impact (i.e., visibility) dimensions [14]. This classification system became a model for the current classification systems employed in the study of children's peer relationships [5]. Currently, the two most common sociometric techniques used within peer relations research are the peer nomination technique and the peer ratings technique.

Peer Nominations

The peer nomination sociometric technique is one method used to determine a child's social status. Commonly, peer nominations are obtained in school classroom settings where children are asked to select from a class roster the three classmates they like the most (positive nominations) and the three classmates they like the least (negative nominations). Although the use of limited nominations has been typical, some researchers allow children to make unlimited peer nominations. For younger children, peer nominations are often obtained by asking children to select from a set of class photographs the classmates they like most and like least [4]. Sociometric categories of social status are determined by the relative number of positive nominations and negative nominations children receive from their peers. Children are classified into one of five sociometric categories of social status: popular (many positive, few negative nominations), rejected (many negative, few positive nominations), neglected (few positive and few negative nominations), controversial (many positive and many negative nominations) and average [7]. Research has shown that sociometric classification systems developed for use with the peer nominations technique have good reliability and validity in classifying children's social status [7, 11, 15].

Another use of peer nomination techniques has been to measure perceived popularity, or the child's level of social visibility within the peer group. Students are typically asked to identify the most popular people in their class; thus, this technique is employed as an index of social reputation, whereas sociometric popularity is an index of likeability. Children who are perceived as popular are not necessarily well liked by the peer group as they are more apt to engage in antisocial behavior than children who are sociometrically popular [6].

Peer nomination techniques have also been used to identify children's friendships. Typically, children are asked to nominate their three best friends. If two children nominate one another, then they are considered friends. In some cases, children are also asked to indicate a very best friend, and if that friendship is reciprocated, then the particular dyad is considered to be very close friends [3].

Peer Ratings

The peer rating sociometric technique is used to determine a child's level of social acceptance. Children are asked to rate an aspect of peer interaction (e.g., how much they like to play with a specific classmate), typically on a 5-point Likert-type scale (e.g., 1 = *not at all*; 5 = *a lot*). For younger children, a 3-point Likert-type scale with

visual aids (e.g., faces ranging from frowns to smiles) is often used, along with photographs of the classmates to be rated [4]. The mean peer rating received is used to determine a child's level of acceptance in the peer group (i.e., low, average, high). To eliminate the possibility of children being inaccurately classified, most rating scales include a "don't know" option for children to choose if they do not know a classmate.

In contrast to peer nomination techniques, peer rating techniques do not allow distinctions to be made among the low status groups (i.e., rejected, neglected, controversial). Nevertheless, peer ratings have high levels of reliability and validity [2]. In fact, peer ratings yield more reliable data than nominations given that each child is rated by all participants [13], whereas peer nominations provide information only on participants who are nominated by their peers. In addition, rating scales are better able than nomination techniques to detect even subtle changes in the level of a child's acceptance by the peer group.

Ethical Issues Related to the Use of Sociometric Techniques

Not surprisingly, some school personnel and parents have raised concerns about the appropriateness of having children report how much they like their peers. Examination of the impact of having children complete sociometric measures has revealed that participation in these tasks does not appear to have negative effects on children [8]. After completing sociometric measures, children do not tend to change their social interaction patterns. Indeed, children tend not to play with peers they dislike either before or after responding to sociometric measures. Furthermore, children's feelings of loneliness do not increase, even among the low-accepted groups, and children generally report that they enjoy completing these measures and sharing their feelings. Of course, it is important to emphasize to children that researchers will keep their responses confidential, and children are strongly encouraged not to discuss their responses with peers. Interestingly, however, girls have been found to be more likely than boys to discuss their responses, though they are much more apt to seek out someone to whom they gave a positive, versus a negative, evaluation. The likelihood of children discussing their responses can be decreased if sociometric measures are administered before other structured activities, such as a math lesson, and not before unstructured time, such as recess. Despite findings that participation in sociometric tasks does not adversely impact children, researchers have investigated alternative techniques that do not involve the use of negative nominations, which seem to be the most controversial. Specifically, data from positive nominations and rating scales have been combined, with low ratings being used as a substitute for negative nominations. This system accurately identifies rejected status children when circumstances do not allow for the use of negative nominations [1].

Relevance to Childhood Development

Sociometric techniques have been important tools for identifying how successful children are within their peer group. A valuable contribution of sociometric measures is that they have enabled researchers to develop profiles of the types of behaviors that are associated with children being liked, disliked, or overlooked by the peer group. For example, prosocial behaviors are correlated with popularity, aggressive and disruptive behaviors are predictive of rejection, and social withdrawal is associated with peer neglect [12]. The use of sociometric techniques has also revealed that the relation of specific behaviors to status sometimes varies as a function of the child's gender, developmental level, or social context. For example, withdrawn behavior is increasingly associated with peer rejection as children get older, and this is especially true for boys. Research using sociometric techniques has indicated that particularly those children who are rejected by peers are at risk for a variety of negative outcomes, including loneliness, depression, delinquency, and academic difficulties [9]. Given the risks associated with rejected status, researchers have focused on trying to improve the acceptance of rejected children as a means to reduce their vulnerability to maladaptive outcomes. Information about how specific behaviors are related to peer status has been important for informing the design of social skills intervention programs. Such programs tend to be based on the premise that rejected children are often deficient in critical social skills, and within these programs children receive coaching on and practice those skills that have been found to be associated with peer acceptance.

Sociometric techniques have been used effectively to identify children who are having difficulties in the peer group and who may benefit from social skills intervention programs. Moreover, these measures are important for assessing the impact of such interventions. It should be noted that peer ratings seem to be more sensitive to detecting changes in peer status following interventions than are nomination techniques. Although post-intervention, a child may still not be nominated among peers' top three choices as a most liked student, a rating scale can reveal whether there have been even subtle improvements in the peer group's liking of that student. Overall, sociometric techniques are useful tools for understanding

children's social relationships, identifying children who may be at risk for later maladjustment, and assessing the effectiveness of social skill interventions.

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Sociomoral Perspective-Taking

►Perspective-Taking

Sociopathy

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Synonyms

Antisocial personality disorder; Dissocial personality disorder; Psychopathy

Definition

Sociopathy is a term used to describe certain personality characteristics including lack or impaired conscientiousness, lack of future orientation, lack of interest in goal-directed activities [15], egocentricity, callousness, impulsivity, exaggerated sexuality, excessive boasting, risk taking, inability to resist temptation, antagonistic and deprecating attitude toward the opposite sex, and lack of interest in interpersonal bonding.

Description

The concept of psychopathy was introduced in the literature by Cleckley around the 1940s [20]. Sociopathy was once considered as a distinct cluster of personality disorders, namely the Sociopathic Personality Disturbances (SPD). SPD was recorded in the first edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-I; 1952) as a cluster of personality disorders encompassing two distinct personality disturbances, antisocial and dyssocial personality reaction and reflected specific types of social deviance [1]. In the second edition of the DSM (DSM-II; 1968), the category of SPD along with the dyssocial reaction component were discarded, though the antisocial reaction component remained, reflecting a distinct personality disturbance. The antisocial component was retained throughout the following editions of the DSM, i.e., DSM-III (1980), DSM-III-R (1987), DSM-IV (1994), and DSM-IV-TR (2000); however, since the 1980s it has been considered as a distinct personality disorder, namely Antisocial Personality Disorder (APD), which fell under the umbrella of Cluster B personality disorders [17].

The concept of Dissocial Personality Disorder (DPD) is currently used by the World Health Organization (WHO) to describe personality disturbances characterized by disregard for social obligations, and callousness. Moreover, within DPD there is gross disparity between behavior and social norms, and the behavior does not

seem to be modifiable by adverse experience or punishment. Individuals diagnosed with DPD show low tolerance to frustration and a low threshold for discharge of aggression, and are characterized by the tendency to blame others and the use of rationalizations to explain behavior that has brought the person into conflict with society (http://www.who.int/classifications/apps/icd/icd10online/?gf60.htm+f60.2).

Since the abandonment of the SPD concept in 1968 and the introduction of APD, little work has been done engaging the concept of sociopathy. Nonetheless, contemporary research and practice uses the terms sociopathy, psychopathy, DPD, and APD interchangeably. However, Lykken [15] argues that even though the most recent editions of the DSM treat the APD as a single entity, experience in the field denotes that APD is a heterogeneous category, constituted by subcategories among which are sociopathies, the major subcategory of antisocial personalities, and psychopathies, which constitutes an officially undocumented subcategory of APD.

Lykken [15] postulates that Sociopathy refers to individuals with normal temperament and in whom antisocial tendencies stem from the individuals' failure to acquire the basic attributes of socialization due to failure of the primary socializing agents, the parents, and especially due to weak parental bonding and control and averse parental example. Furthermore, sociopaths are believed to be involved in more criminal acts compared to psychopaths. On the other hand, antisocial tendencies in psychopathy are believed to stem from biological and temperamental differences, as well as qualitative differences in brain function, which make it difficult to socialize these individuals while they are growing up [9]. Finally, Lykken [15] conceptualizes sociopathy and psychopathy as conditions lying on the opposite ends of the same dimension, with maximized inadequate parenting being located at the sociopathic end and maximized difficult temperament being located at the psychopathic end.

Additionally, even thought psychopathy in general is believed to include features such as remorselessness, callousness, deceitfulness, egocentricity, failure to form close emotional bonds, low anxiety proneness, superficial charm, and externalization of blame, many theorists have argued that psychopaths can differ from one another substantially, both on a behavioral and on a categorical level [20]. Such conceptualizations led to the proposal of two different types of psychopathy, primary and secondary. These two subtypes are distinguished from one another based on anxiety proneness. Primary psychopathy refers to individuals who do not seem to experience anxiety or guilt due to low conscience; while secondary psychopathy refers to individuals with antisocial behavior who experience high levels of anxiety and neuroticism [20].

Nevertheless, neither sociopathy nor psychopathy have ever been clearly defined and are not even included in the contemporary official psychiatric nomenclature [15]. Thus, even though focus in research has been proportionally placed upon psychopathy, the majority of research has been mainly concerned with APD. APD is a chronic condition characterized by a pervasive pattern of disregard for, and violation of, the rights, wishes, or feelings of other people, which begins in childhood or the early teenage years and proceeds into adulthood [2]. This pattern of ignorance for the rights of others might be indicated by three or more of the following features: failure to conform to social norms, regarding lawful behavior, which is indicated in recurrent acts which can lead to arrest; deceitfulness and manipulative behavior, as evidenced in repeated lying, the use of aliases, conning, or malingering with an aim for personal profit or pleasure; impulsivity or failure to plan ahead, decisions taken on the spur of the moment without considerations about the consequences of one's behavior; irritability and aggressiveness, as evidenced by repeated physical fights or assaults, including spousal and child abuse; recklessness regarding one's own and others' safety, as indicated for example in speeding, driving while intoxicated, and substance abuse; irresponsibility, as evidenced in the person's inability to keep consistent work behavior, leading to recurrent job abandonments and prolonged unemployment periods, or the person's inability to meet financial obligations; and lack of remorse, as evidenced in behaviors of indifference or the use of rationalization for hurting or mistreating others. Moreover, for the diagnosis of APD to be applied the person must be at least 18 years old and there must be a history of Conduct Disorder (CD) before the age of 15 [2].

APD affects approximately 3% of males and 1% of females in community samples, whereas in clinical settings prevalence estimates range from 3 to 30%, with higher estimates being reported among substance abuse and prison settings [2]. Additionally, APD is closely associated with features traditionally attributed to psychopathy such as lack of empathy, callousness, cynical behavior, inflated or arrogant self-appraisal, superficial charm, and sexual exploitation [2]. Individuals with APD may also have a history of multiple sexual partners, and are more likely to be irresponsible parents, may fail to be self-supportive, and also have high probabilities of becoming impoverished and homeless, spend many years in penal institutions, or die prematurely by violent means, including suicide, accidents, and homicides [2]. Other associated

symptoms or disorders with APD include dysphoria, inability to tolerate boredom, anxiety disorders, depressive disorders, substance-related disorders, somatization disorder, and pathological gambling or other disorders related to impulse control, as well as features of other personality disorders, especially borderline, histrionic, and narcissistic personality disorders [2]. Finally, even though the condition is chronic, it is possible to become less evident as the person grows older, and especially around the age of 40 [2].

Overall, scientific research indicates that APD constitutes the developmental representation of CD in adult life, however, recent evidence also suggests that sociopathy can be acquired as a result of brain trauma or injury particularly in the right frontal region, including the orbitofrontal cortex (e.g., 8). Nonetheless, individuals with "acquired sociopathy" seem to be differentiated from individuals with developmental APD in that the former exhibit significant impairment in attributing mental states, such as fear, anger, and embarrassment, to others [6].

Relevance to Childhood Development

APD and associated disorders, including sociopathy and psychopathy, seem to be the consequences of CD, a behavioral disorder evident in childhood or early adolescence. CD is among the most common reasons that children and adolescents are referred to mental health professionals, affecting approximately 4–14% depending on age group, gender, and setting [8]. According to the diagnostic criteria of the DSM-IV-TR [2?A3B2 tlsb=-.012w?>] CD is characterized by a repetitive and persistent pattern of behavior by which the basic rights of others are violated or age-appropriate societal norms or rules are disobeyed. This must be manifested by the occurrence of at least three features from four categories of behavior for the past 12 months, and at least one criterion present for the past 6 months. The four categories of behavior include (a) aggression to people and animals, as manifested in bullying, threatening, or intimidating others, initiating physical fights, using a weapon that can cause serious physical harm to others, being physically cruel to people, being physically cruel to animals, stealing while confronting a victim (e.g., mugging, purse snatching, or armed robbery), or forcing someone into sexual activity; (b) destruction of property, as manifested in deliberately engaging in fire setting with the intention to cause serious damage, or deliberately destroying others' property; (c) deceitfulness of theft, evidenced in actions of breaking into someone else's house, building, or car, often lying in order to obtain goods or favors or to avoid obligations, or stealing items of nontrivial value without confronting a victim, such as shoplifting; and (d) serious violation of rules, as indicated by staying out at night despite parental prohibitions before the age of 13, running away from home overnight at least twice, or school truancy before the age of 13. These behaviors must cause clinically significant impairment in social and occupational functioning, and usually be present in a variety of settings, including home, school or the community [2].

Children with CD may be subcategorized on the basis of age of onset of the disorder. CD may have its onset in childhood, if at least one of the above criteria is present before the age of 10, or in adolescence, if none of the criteria are present before the age of 10. Children with childhood-onset CD are also characterized by more aggressive and impulsive behavior, and more cognitive and neurophysiological disturbances [11]. Additionally, childhood-onset CD combined with Attention-Deficit/Hyperactivity Disorder (ADHD), as well as child abuse or neglect, unstable or erratic parenting, and inconsistent parental discipline exacerbate the probability of developing APD in adulthood [2]. Conversely, children with adolescent-onset CD exhibit a severe and impairing pattern of antisocial behavior, which is particularly related to the process of individuation and independence and includes behaviors such as rejection of status hierarchies and religious rules [11].

In addition to the childhood versus adolescent onset classification, Frick et al. [10] classified CD subgroups in terms of the presence of callous-unemotional (CU) traits (e.g., lack of guilt, lack of empathy), an approach which is analogous to adult conceptualizations of psychopathy. The logic behind this classification system derives from studies revealing distinct correlates for the subsets of CD children who also show high levels of CU traits (*CD-high-CU*) compared to those who do not (*CD-low-CU*). *CD-high-CU* children, who are primarily characterized by proactive forms of aggression [16], have shown substantial evidence of deficits in emotion processing such as decreased orienting to affective stimuli [14], low fearful inhibition [12], reduced affective perspective-taking (not underlined by deficits in affective perspective-taking) [3], and reduced vicarious affective responsiveness [4] underlined by underactivity in the sympathetic autonomic nervous system [18]. All these findings may be suggestive of affective-specific deficits in *CD-high-CU* children. In *CD-low-CU* children, on the other hand, reactive rather than proactive patterns of aggression have been reported and their lack of impulse control has been related to a diverse set of interacting causal factors such as social information processing deficits, dysfunctional family background and verbal intelligence deficits [10].

Regarding the developmental course of CD, it is noteworthy that not all children with CD will develop APD in adulthood. Even though CD in childhood and adolescence is a strong predictor of antisocial behavior in adulthood, with studies indicating that children with high instances of antisocial behaviors have a 43% chance of meeting criteria for APD in adulthood and estimates being higher in institutionalized populations, not all youth with CD engage in antisocial acts in adulthood. Having a parent with APD seems to be a strong predictor of persistence of conduct difficulties from childhood into adolescence, and then into adulthood [21]. However, further research on the persistence of CD into adulthood indicated that persistence can be predicted mainly by genetic influences [7], as well as cognitive functioning and biological and social factors, and specific personality traits such as CU traits.

Etiology

Research has identified five clusters of environmental risk factors that can potentially lead to the development of CD in childhood and APD in adulthood. The clusters encompass (a) child, (b) family, (c) school, (d) peer, and (e) neighborhood factors [22]. Child factors include birth complications, difficult child temperament, impulsivity, substance use, aggression, early-onset disruptive behavior, and low intelligence. Family factors include parental antisocial and delinquent behavior, parental substance abuse, poor child-rearing practices, such as poor supervision [2, 22], physical punishment or inconsiderate discipline [2], poor communication [22], parental rejection and neglect [2], parental physical or sexual abuse, maternal depression, maternal smoking during pregnancy [2, 22], maternal malnutrition [5], single parenthood [22], large family size [2, 22], low socioeconomic status, unemployment, and poor education and familial history of APD, Substance Dependence or Abuse, and ADHD [2]. School factors include poor academic performance, low educational aspiration, and low school motivation [22]. Peer factors include peer rejection and being associated with deviant and delinquent peers [2, 22]. Finally, neighborhood factors include living in a disadvantaged, poor, or disorganized neighborhood and having easy access to weapons [2, 22].

Additionally, it is well documented that CD and APD are highly influenced by several neurophysiological and genetic factors. Neurophysiological models suggest the involvement of the Behavioral Inhibition System (BIS) and the Behavioral Activation System (BAS) proposed by Gray, in that the BIS, which is related to fear and anxiety and inhibits action in novel situations or in situations where punishment is involved, in children with CD appears to be underactive, whereas the BAS, which is related to reward-seeking and pleasurable behaviors, is overactive [22]. Moreover, other neurophysiological models refer to defects in the fight/flight (F/F) system, which is involved in defensive reactions in situations of frustration, punishment and pain, in that children with CD seem to have a reduced threshold for F/F [22].

Neurophysiological models also suggest that individuals with CD and APD demonstrate specific brain anomalies, especially in the prefrontal cortex, as well as neurotransmitter and hormonal defects, and particularly diminished noradrenalin, serotonin, and cortisol levels combined with excessive levels of testosterone [8].

From the genetic perspective, twin and adoption studies have revealed that there is high heritability among specific components of antisocial behavior, such as difficult temperament, sensitivity to alcohol, irritability, impulsivity, sensation seeking [5, 22], as well as risk-taking and CU traits [5]. In addition, specific genes related to aspects of antisocial behavior have been identified. These are predominantly specific 5-HT serotonergic genes, such as the HTR1B, the HTR2A, the HTR1DA, and the TDO2, and it is indicated that low levels of serotonin increase impulsivity and inhibit sensible behavior, thus increasing the likelihood for risky and antisocial behavior, such as drug abuse and gambling, and they are also associated with aggressive and violent behavior [5]. Moreover, the DRD2 dopamine receptor gene has been positively linked to impulsive, compulsive and addictive behavior [5].

Generally, twin and adoption studies have indicated that CD is significantly heritable, with estimates ranging from 27 to 78%. However, growing evidence suggests that both genetic and environmental influences, and particularly their interactions, are of utmost importance in our effort to explain individual differences in antisocial behavior, including differences in criminal behavior [5].

Management

The nature of antisocial behavior disorders, including sociopathy, psychopathy, APD, and CD, makes them particularly problematic for society [21] and understanding their origins is a crucial task for social scientists. To date, researchers have produced substantial evidence that the pathway to these disorders begins in childhood, with conduct problems, attention difficulties, high rates of aggressive behavior, and a persistent pattern of deviant and often illegal activity [7] that cause significant intra and interpersonal dysfunction across the lifespan. Thus reliable empirical identification of the variants of antisocial behavior shall improve our understanding of related disorders and enhance management and treatment efforts [20].

With respect to treatment, empirically supported interventions for children include psychoeducation, antisocial and pro-social behavior monitoring, behavioral parent training, family-based communication and problem-solving training, home-school liaison meetings and remedial tuition, child-based social problem solving skills training, parent counseling for managing personal and marital difficulties, treatment foster home placement when the family is extremely disorganized [8], contingency management, cognitive-behavioral intervention targeting social cognition deficits [13], community-based programs [22], and finally stimulant medication [13]. Research on effective interventions for adult populations indicated that psychodrama and personal construct therapy are potentially effective. A meta-analytic study, conducted by Salekin [19], indicated that psychoanalytic therapy has a success rate of 59%, cognitive-behavioral therapies have a success rate of 62%, whereas combined therapies have a success rate as high as 86%, suggesting that augmenting cognitive-behavioral with other psychotherapeutic techniques may be optimal for individuals with antisocial personality problems. Moreover, effectiveness, in this study, was also dependent on durations, with interventions lasting for more than 6 months being more effective than those which lasted for less than 6 months, and with intervention lasting for a year or longer having a success rates as high as 91% [19].

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Soft Cry

▶Cooing

Soiling

▶Encopresis

Solitary Constructive Play

►Constructive Play

Solution-Oriented Consultation

►Behavioral Consultation

Somatic Sensory Cortex

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Synonyms

Postcentral gyrus; Primary somatosensory cortex

Definition

The somatic sensory cortex, also referred to as the primary somatosensory cortex, is localized to the postcentral gyrus of the parietal lobes, just posterior of the central sulcus, and is vested with the job of processing information being transmitted from the periphery.

Description

The somatic sensory cortex is more commonly referred to as the primary somatosensory cortex. Neuroanatomically, the primary somatosensory cortex is localized to the postcentral gyrus of the anterior portion of the parietal lobes. The essential function of the primary somatosensory cortex is processing peripheral sensation of the contralateral side [2]. Specifically, stimulation of sensory receptors, whether it be in the skin, joints, muscles and/or viscera on the right side of the body, will be processed by the primary somatosensory cortex in the left hemisphere. Vice versa, sensation on the left side of the body will be processed by the primary somatosensory cortex in the right hemisphere [1]. Beyond this basic contralateral organization, the somatosensory cortex and linked sensory pathways are topographically organized. This is to suggest that adjacent areas on the receptive surface are mapped to adjacent fibers in white matter pathways and to adjacent regions of the cortex [2]. Specifically, the adjacent representation of the foot to the leg, the tongue to the face, and/or the hand to the face peripherally is also found on the somatosensory cortex. Somatotopic representations of this arrangement commonly referred to as the sensory homunculus can be found throughout the literature. Essentially, beginning at the most superior point of the postcentral gyrus, that point at which it curves down into the longitudinal fissure, sensation from the genitals is processed. Next, by working inferiorly (i.e., up out of the longitudinal fissure and then down the side of the postcentral gyrus), comes the sensation processing points for the toes, feet, then legs, thighs, torso, neck, head, shoulders, arms, hands and fingers, face, teeth, tongue, pharynx and then abdomen [3, 4]. The site at which sensation from the tongue is processed sits on the cuff that is the sylvian fissure, which separates the parietal and temporal lobes.

In addition to the primary cortex there are secondary and tertiary somatosensory areas [5]. These regions lie posterior and/or inferior to the primary somatosensory cortex and serve as association points in which various incoming information may be integrated. In addition to it working in concert with secondary and tertiary zones, the primary somatosensory cortex is directly linked with motor areas of the brain in order to provide a reciprocal line of communication between one another such that feedback from the somatosensory system may be integrated into motoric processes thereby refining those actions [6].

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Somatization

►Psychosomatic

Somatoform

►Psychosomatic

Somatopsychic

►Psychosomatic

Somatosensory Area

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Synonyms

Somatosensory system

Definition

The somatosensory area refers to the neuroanatomical region at which the various aspects of the somatosensory system converge.

Description

The somatosensory area may be perceived as a general term for the primary regions of the brain that act as a convergence point of the entire somatosensory system. While some may use somatosensory area interchangeably with primary somatosensory cortex, the latter is likely one aspect of the former. From a holistic perspective, the somatosensory area encompasses the postcentral gyrus, which houses the primary somatosensory cortex, as well as adjacent areas of the parietal lobes [4]. These regions receive neuronal input from specific nuclei of the thalamus that correspond with the handling of sensation along the lines of touch, pain, temperature and limb position [4]. This includes the ventral posterior lateral nucleus as well as the ventral posteromedial nucleus [2]. Somatosensory information is transmitted to these nuclei from the spinal cord and specific cranial nerves which then transmit this information on to the somatosensory area. Given their role in this process, both the ventral posterior lateral nucleus as well as the ventral posteromedial nucleus represent relay nuclei in which they receive inputs from various pathways and then project that information onto other areas of the cortex, in this case the somatosensory area [2]. By the time somatosensory information reaches the thalamic nuclei it has already passed through the pyramidal decussation within the medulla. This leads to the contralateral organization of the somatosensory areas. Specifically, somatosensory stimulation on right side of the body will be processed by the somatosensory areas in the left hemisphere whereas sensation on the left side of the body will be processed by the somatosensory areas in the right hemisphere [1]. Initial processes of the somatosensory area take place in the primary somatosensory cortex. The precise locality at which information is processed corresponds with the local area from which the stimulation originates. The somatosensory cortex and linked sensory pathways are topographically organized such that adjacent structures of the body correspond with adjacent structures on the primary somatosensory cortex [2]. Following this arrangement, somatosensory information originating at the genitals is processed at the most superior point of the postcentral gyrus; that point at which it curves down into the longitudinal fissure. Next, by working inferiorly (i.e., up out of the longitudinal fissure and then down the side of the postcentral gyrus), comes the sensation points for the toes, feet, then legs, thighs, torso, neck, head, shoulders, arms, hands and fingers, face, teeth, tongue, pharynx and then abdomen [3, 4]. Once this information is initially processed by the primary somatosensory cortex it is then transmitted on to the secondary and tertiary somatosensory areas as well as the motor areas of the frontal lobes [5]. It is at the point of the secondary and tertiary areas that somatosensory information is integrated with other sensory input and/or associated with various cognitive actions/processes. In terms of somatosensory areas transmitting information to the motor areas, this is done continuously, as refinement and coordination of the latter is largely dependent upon reciprocal feedback from the former [6].

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Somatosensory System

►Somatosensory Area

Soporifics

►Anxiolytics/Hypnotics

Sorrow

►Bereavement

Sorrowful

►Grieving

Sotos Syndrome

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Synonyms

Cerebral giganticism; Nonverbal learning disability (NLD)

Definition

Sotos syndrome is a rare genetic disorder characterized by early rapid bone growth that has an unknown rate of prevalence that is typically diagnosed in early childhood. A high percentage of children and adolescents with Sotos syndrome exhibit global cognitive difficulties and borderline levels of cognitive functioning.

Description

Sotos syndrome is a rare genetic disorder with an unknown rate of prevalence. Estimates for its rate of prevalence within pediatric neurology referrals suggest that it occurs in 17% of persons referred with macrocephaly [5]. The syndrome was initially described in the early 1960s and was also known as cerebral giganticism. The initial descriptions focused on two main characteristics, early rapid bone growth and global cognitive impairments. In addition, it was observed that children with Sotos syndrome appeared to have similar facial features. Many, but not all, cases of Sotos syndrome can be linked to the NSD1 gene mutation.

While current literature appears to indicate that cognitive functioning for children with Sotos syndrome may not fall in the range of mental retardation, recent investigations do suggest that individuals with Sotos syndrome, on average, perform in the borderline range on standardized measures of cognitive functioning [1]. Borderline cognitive functioning falls in the range of 71–85 inclusive. Evidence that individuals with Sotos Syndrome have lower than average cognitive abilities is consistent with early descriptions of the presentation of the syndrome [2]. The view that all or most individuals with Sotos Syndrome have lower cognitive functioning has been challenged by several authors over the past 20 years, with Sarimski [4] and Rutter and Cole [3] being examples.

Because of the low prevalence rate of the disorder, much of the literature surrounding it is comprised of case studies and meta-analyses. As a result, there have been case study reports of psychosis and other psychiatric disorders that may be isolated incidents within a small pool of cases. Studies with larger samples do provide some evidence that children with Sotos syndrome may be more likely to exhibit symptoms of anxiety than other children with mild to moderate cognitive impairments [4].

Physically, individuals with Sotos syndrome may present with hand and skull growth that is above the 90th percentile prior to age 3. These individuals may have distinctive angular facial features as well. As individuals with Sotos syndrome enter older childhood and adolescence, height, hand, and skull growth slows causing the individual to have a less atypical appearance. Individuals with Sotos syndrome may retain the angular facial features that were present in early childhood.

Individuals with Sotos syndrome are often referred to neuropsychologists and related specialists because of concerns related to developmental delays, behavioral problems, and possible psychiatric concerns. Individuals with Sotos syndrome may exhibit difficulties in general cognitive ability, executive functioning, and specific fears. Individuals with limited cognitive abilities may have greater difficulty in using adaptive strategies for managing stressful events associated with specific phobias. As a result, those working with individuals with Sotos syndrome may have to develop strategies that allow for individuals to escape particularly stressful or anxiety invoking situations.

Interventions for individuals with Sotos syndrome need to focus on the following domains: academic, emotional, and when warranted, adaptive functioning. As a result of the variation in cognitive functioning in individuals with Sotos syndrome, evaluations of cognitive functioning, possible anxiety symptoms and its triggers, adaptive functioning, and academic skills are necessary.

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Spanking

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Synonyms

Corporal (physical) punishment; Paddling; Smacking; Whipping

Definition

Spanking is a form of corporal punishment that usually refers to striking the buttocks with one's hand or other object (e.g., a wooden paddle, a switch, or ruler).

Description

Spanking as a form of discipline has likely been around for thousands of years. Currently, spanking by parents is illegal in 24 countries. In the United States, spanking by parents is permitted as long as excessive force is not used and it is not abusive in nature. Although some states prohibit spanking in schools, many states still allow corporal punishment by educators. It is estimated that as many as 1.5 million spankings occur each year in schools. Most professional organizations and international health organizations discourage spanking as a form of discipline and recommend less physical means of changing behavior.

Relevance for Childhood Development

Many American parents spank their children. They do so, primarily, because their children behave aggressively or fail to comply with their directions or commands. It is estimated that about 63% of parents spank their 1–2 year olds and 85% of adolescents have been spanked because of their behavior. Although infrequent, mild, controlled spankings are unlikely to have any lasting negative effects, children who are exposed to repeated, harsh spankings may experience many negative side effects. Some of these include increased aggression, decreased quality of the parent–child relationship, anger/ hostility toward the spanker, and an increased risk of abusing their own children or their spouse. Perhaps more troubling is that mothers who spank their children are three times more likely to engage in abusive behaviors including beating, kicking, hitting, burning, or shaking a child less than 2 years old. The likelihood of abuse increases as the frequency of spanking increases.

There is no question that spanking is effective for producing short-term compliance in children. That is, immediately following a spanking, children are much more likely to be compliant. However, spanking does not teach a new behavior (that is, what the child should be doing instead of the inappropriate behavior) nor does it produce long-term benefits. Also, spanking is not an intervention that one could use, or should even want to use, on more than an infrequent basis. There are other child behavior management techniques that are equally or more effective (e.g., time-out, response cost, overcorrection) that do not involve a physical punishment component. If parents insist upon spanking as a disciplinary technique, they should be encouraged to use the controlled spanking procedure that involves an open hand on the buttocks, leaving no marks or bruises, as a back-up technique for non-physical disciplinary measures, and used in conjunction with reasoning and within a loving family atmosphere.

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Spasm

►Tics

Spatial Ability

►Spatial Intelligence

Spatial Intelligence

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Synonyms

Gardner's theory of multiple intelligences; Spatial ability; Spatial reasoning; Visual-spatial reasoning

Definition

Spatial Intelligence is the capacity to envision, reason with, and recall nonverbal, symbolic information.

Description

Spatial intelligence involves the use of reasoning and memory skills with nonverbal, symbolic information. It has also been long thought of as an important component of general intelligence. Howard Gardner's popular theory of multiple intelligences defines it as the ability to perceive the visual-spatial world [3]. Others have further broken down spatial intelligence as comprising subcategories which typically include spatial perception, mental rotation, spatial visualization, and object location [2, 4].

As Linn and Peterson described in their meta-analysis, spatial perception involves examining spatial relationships in relation to their own orientation, such as having to place a rod vertically while looking through a tilted or rotated frame [4]. Mental rotation involves mentally rotating two and three dimensional objects, such as determining whether an object is identical to a rotated reference object. Spatial visualization involves the use of both spatial perception and mental rotation to solve more complicated mental manipulations where more than one solution may be possible, such as paper folding and block design tasks. Object location requires recall of object positions documented. As of yet, however, a well agreed upon categorization of spatial abilities does not exist [2], but most researchers do tend to agree that there is more than just one type of spatial ability [1].

There has also been debate over the existence and emergence of sex differences found on measures of spatial intelligence. The pendulum has, over the years, swung back and forth on whether observed sex differences are due to environmental factors, such as test development and stereotypes [1, 6], or to biological factors, such as neurophysiology and evolution [2]. Research has generally documented differences favoring males, with the most robust evidence on mental rotation tasks [4], while differences favoring females have been typically found on object location tasks. Men have also been found to rate their spatial abilities higher than women [5].

Relevance to Childhood Development

Researchers have also studied spatial intelligence in children. Over the years, researchers have debated about the emergence of the male advantage, with some contending for adolescence and others arguing for an earlier emergence [4]. Regardless, spatial abilities develop when children are given opportunities to manipulate and explore objects. It is reasonable to suggest that differential spatial abilities could be due to differential opportunities to explore the environment. Teachers are taught principles in differential teaching strategies that recognize that no student is alike in that some may have more developed skills (e.g., spatial intelligence) than others. Therefore, it is reasonable to suggest that children found to have less developed spatial skills should be given more opportunities to develop these skills.

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Spatial Reasoning

▶Spatial Intelligence

Speaking

▶Verbal Skills

Special Education

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Synonyms

Exceptional education; Individualized education; Individuals with disabilities education act (IDEA); Special services

Definition

All children are entitled to an education. Children with disabilities, however, require special or extra adaptations and services to enable them to benefit from their educational program. According to the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA), special education means specifically designed instruction, at no cost to the parents, to meet the unique needs of a child with a disability.

Special education services are the direct instructional activities or special learning experiences designed primarily for students identified as having exceptionalities in one or more aspects of their development, or as being underachievers in relation to their overall abilities. Categories of disability include: mental retardation, specific learning disabilities, serious emotional disturbances, speech or language impairments, vision loss, hearing loss, orthopedic impairments, other health impairments, deafness-blindness, multiple disabilities, autism, and traumatic brain injury. Programs for the gifted and talented are also included in some special education programs.

Description

The provision of special education services has a long and somewhat litigious history. Gaining power from the equal rights obtained in Brown vs. Board of Education (1954), special education enacted the Education for All Handicapped Children Act (Public Law 94–142) in 1975. PL 94–142 was the first Federal law to hold states responsible for educating school-age children with disabilities just as they had for children not labeled with a disability. Today, the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA, also referred to as IDEA), which updated the Individuals with Disabilities Education Act (IDEA) of 1997, describes six principles that engender the framework of educational practices that are used to enable children with disabilities to learn. Without the procedural framework set out by law, the needs of many children with disabilities would likely not be met. These principles are: zero exclusion, nondiscriminatory evaluation, appropriate education, least restrictive environment (LRE), parent and student participation, and procedural due process.

Zero Exclusion

This principle requires a free appropriate public education to *all* children, regardless of type or level of disability. No child may be excluded from an education provided at the local educational agency's (LEA) expense. Zero exclusion acknowledges that all children are able to learn and benefit from an education, and therefore the public school system must educate them by meeting their unique needs and help prepare them for a meaningful and integrated life in the community.

Nondiscriminatory Evaluation

The nondiscriminatory evaluation (NDE) process is an essential starting point for planning an educational program for a child with a disability. The intent of NDE is twofold: to assess if a child has a disability, and then to identify the types of special education and related services the child should receive. NDE requires that the assessments, tests, and other measures of academic and developmental functioning must be objective and free from cultural and/or ethnic bias. IDEA also requires that assessment instruments be used for the purpose for which they were validated (e.g., an IQ test is not appropriate for curriculum planning), that a multidisciplinary assessment team considers information from multiple sources, and that assessments must be administered in the child's primary or native language.

The criteria for receiving special education and related services are twofold. First, the child must have a disability that is included in IDEA. Secondly, the child's disability must sufficiently interfere with learning so there is a need for special education and related services. These two factors make a child eligible for classification. Some children with disabilities who do not meet special education eligibility criteria can be supported through another federal program, Section 504 or the Americans with Disabilities Act, which provides for reasonable accommodation to enable them to access their education.

Appropriate Education

IDEA 2004 provides for a *free and appropriate public education* for each child classified as in need of special education and related services. It is free because it is provided at no cost to the parents and it is considered appropriate because it meets the individual needs of the child. Once a child aged 3–21 is classified as in need of special education and related services, a team of

professionals appropriate to that child's specific learning needs convenes to develop a written individualized educational program (IEP). For children birth to 2 years old, the plan is called an Individualized Family Service Plan (IFSP). Each individualized program is developed by professionals and the child's parents. The overall purpose of the plan is to design and deliver an IEP from which the child will benefit in accordance with IDEA.

Minimally, the child's IEP team must consist of a special education teacher, a general education teacher (if the child is participating or may be participating in the general education program), and a representative of the LEA who is knowledgeable about both the special needs of children with disabilities and about the general curriculum of the district. Additionally, the IEP team must include a professional who is qualified to interpret the results of the NDE. The IEP document provides for consistency in service delivery for the school district and a communication vehicle between parents and school personnel. The IEP must include: (a) present levels of educational performance; (b) measurable annual goals, including short-term objectives; (c) the special educational and related services and supplementary aids and services that will be provided to the student, and the program modifications or supports for school personnel that will be provided so that the student can make progress toward their annual goals, participate in the general curriculum and non-academic activities of the school, and be educated and participate with other students who do not have disabilities; (d) the extent, if any, to which the student will not participate with students who do not have a disabilities in general education and other non-academic activities; (e) any individual modifications in the administration of state-or district-wide assessments of student achievement so that the student can participate in those assessments, or if the IEP team determines that the student not participate why that decision was made and how the student will be assessed; (f) the projected date of beginning the services and program modifications and the anticipated frequency, location, an duration of each; (g) transition planning beginning at age 14; and (h) how the student's progress toward their annual goals will be measured and how the student's parents will be informed of progress toward annual goals, and the extent to which the student progress is sufficient to achieve the annual goals by the end of the school year.

According to IDEA, related services include, but are not limited to areas such as: transportation, speech-language pathology and audiology services, psychological services, physical and occupational therapy, recreation, social work services, counseling services, rehabilitation counseling, orientation and mobility services, and medical services (for the purpose of diagnosis and evaluation for special education).

Least Restrictive Environment

IDEA 2004 provides that children with special needs be educated to the maximum extent appropriate with children who do not have disabilities and that the removal of children with disabilities from the regular education environment occurs only when the nature or severity of the disability is such that education in regular classes, with the use of supplementary aids and services cannot be achieved satisfactorily. This component of IDEA is called the least restrictive environment (LRE). A continuum of placements is available, including: (a) general education classroom, (b) general education classroom with a special education teacher as a consultant to the general education teacher, (c) general education placement with resource room for specialized instruction, (d) special education class placement with some general education classes, (e) full-time special education class within a general education school, (f) separate special education school placement, and (g) home or hospital-school setting. The further away from a general education environment, the more restrictive the placement. The LRE appropriate for each child is determined by the IEP team which includes the child's parents. However, it is important to note that IDEA has a presumption in favor of inclusion. Thus, an LEA is supposed to provide for all the necessary adaptations, supplementary aids and supports, for the child in the LRE before a determination is made that a change in placement to a more restrictive setting is needed.

IDEA also provides for infants and toddlers (birth – 2) to receive services in *natural environments;* that is settings where children without disabilities are educated. These natural environments could include the infant or toddler's home, full-or part-time placement in public or private general pre-schools, or in special needs private schools.

Parent and Student Participation

The intent of IDEA is to have parents involved in all aspects of their child's education, especially regarding evaluation, IEP development and IEP team meetings. Parent participation is critical in the development of an appropriate education. Essentially, any time a decision is made that affects the free and appropriate education of their child, a parent must be notified and have the right to participate in decision-making. They have the right to see their child's evaluations and records, and school district general records about special education. Parent participation is also facilitated at the state level; for example,

parents are entitled to participate in statewide special education planning processes, must make up a majority of the membership of the statewide council on special education, and have the right to see the state's special education plan and receive public notice of hearings on the plan. Further, students themselves have a right to be members of their IEP team and are encouraged to do so, regardless of the level of their disabilities. Preparing students for meaningful participation on their IEP team can make students ready for constructive participation as adults in their community.

Procedural Due Process

IDEA provides a system of accountability and safeguards that must be followed to insure that a student with special needs receives a free and appropriate education; this system is called procedural due process. Parents have the right to be informed about possible changes in their child's free and appropriate public education including IEP, placement, and to consent or withhold consent from actions the school district wishes to take regarding their child. Parents must receive written notice of their due process rights at the initial referral of their child for evaluation, and upon notification of meetings regarding their child. Importantly, parents must also receive written notice of their right to file a complaint about the LEA's violation of their child's rights. All notices must be in a communication medium the parents understand. IDEA entitles parents to mediation services to resolve issues with the LEA and they have the right to a due process hearing before an impartial person. The losing party has the right to appeal to higher authorities.

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Special Education Needs

►Special Needs

Special Needs

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Synonyms

Disability; Special education needs

Definition

The term "special needs" is an umbrella term referring to a variety of developmental disabilities. Special needs can include learning disabilities, visual impairment, hearing impairment, cerebral palsy, ADHD, physical limitations, asthma, Asperger's Syndrome, and Autism. Although the term includes gifted academic ability, people often limit the discussion to what the individual cannot do. In general, the term "special needs" is applied when a person needs services not usually provided to all citizens. For example, most school children are not provided physical therapy in the school. Therefore a child who does receive PT at school may be considered a special needs child.

Description

Government Programs

Most societies create mechanisms to help persons with special needs. There is a wide variation based on culture, economics, and type of government. These factors also determine the mix between government and non-government programs. In the US, there are numerous government organizations (GOs) which provide money and services to persons with special needs. Financial support is provided for persons with special needs by the social security administration (SSA). The SSA determines whether a person fits their definition of "disabled," and if so, provides financial assistance.

Health care is often provided by Medicare, which uses the same definition of "disabled." It is administered by the Centers for Medicare and Medicaid Services (CMS), a branch of the federal government. Another program which uses disability as a criterion is Medicaid. Medicaid is centrally overseen by the CMS, but administered and partially funded by the states. Medicaid coverage is primarily driven by income level. Because many disabled individuals have low incomes, they may qualify for Medicaid. Many states also have vocational and job facilitation programs, although there is a wide variation from state to state.

The two largest health care entities in the US fall under the Veterans Administration (VA) and Department of Defense (DoD). The VA provides healthcare as well as income to many disabled veterans. The VA uses different criteria for evaluating special needs, assessing percentages for various conditions. They also grant care only for conditions which arose during military service.

The DoD provides healthcare to active duty military, their families, and military retirees. Obviously the disabled veteran population and the military retiree population overlap. Special needs situations can arise in any segment of the military population. Military families can have special needs spouses and children, and the military has the Extended Care Health Option, a program which pays for special health care needs, as well as providing integrated services like case management.

Services for persons with special needs may also be provided by local government entities. Many US cities have special transportation services adult and child day care services, and meal programs.

Non-Governmental Programs

Persons with special needs can benefit from the efforts of non-governmental organizations (NGOs) which operate at many levels. International organizations such as the Gates Foundation, Lions Clubs, Rotary International, and numerous church groups can provide micro-level services to individuals and communities, or they may provide macro-level functions, such as funding medical research. There is a complex web of relationships between NGOs, other NGOs, and GOs, as they transfer money in the form of grants, and exchange information. In many cases NGOs are regulated by GOs through statute.

NGOs may also function at the national level. A good example of this is the March of Dimes, which focuses on the health of babies in the United States. Like the international NGOs, the March of Dimes performs research, provides services, educates, and advocates.

State and local-level NGOs also perform important functions. They may offer financial assistance, volunteer services such as babysitting, and educational and outreach services.

It can be difficult for a special needs family to negotiate the complex web of services and financial aid offered by this myriad of organizations. Regardless of whether the helping organization is governmental or non-governmental, or at what level it functions, a key component is informing and educating special needs families so they can best avail themselves of the services available.

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Special Services

►Special Education

Specific Developmental Disorder of Motor Dysfunction

►Developmental Coordination Disorder

Specific Exploration

►Active Exploration

Specific Folkways

►Cultural Difference

Speech

►Verbal Skills

Speech and Language Disorders

►Communication Disorders

Speech Sound Disorders

►Phonological Disorders

Speech Therapy

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Synonyms

Articulation voice, or fluency therapy; Speech–language therapy

Definition

Speech therapy is the treatment of an individual for a disorder in one of three speech domains: articulation, voice, or fluency. Treatment is typically provided by a speech–language pathologist (SLP), often known as a speech therapist. Speech–language pathologists hold a master's degree and have advanced education in human communication, state license or certification, and are nationally certified by the American Speech-Language-Hearing Association (ASHA).

Description

Speech therapy is the treatment of an individual for remediation of a diagnosed speech disorder. After an in-depth diagnostic assessment has determined the presence of a speech disorder or delay, treatment is prescribed on an individual basis. Speech, a verbal means of communicating, includes articulation and phonology (the production and meaning basis of speech sounds), voice (the use and quality of the vocal folds, nasal resonance, and respiratory support) and fluency (the flow and rhythm of speech). A speech disorder may include a delay in development or disorder in any of these three areas to the point that a listener cannot understand, is distracted from what is said, or speech is painful or embarrassing to the speaker. Speech disorders are most commonly associated with articulation or phonological disorders. Articulation disorders are associated with a deficit in motor production aspects of speech. Phonological disorders are concerned with a deficit in producing appropriate speech sounds in context to demonstrate understanding and use of the phonological rules of a language. Voice disorders are associated with abnormal voicing during speech characterized by harsh, breathy, strained vocal quality, or lack of voice, nasality/resonance, or volume or pitch disturbances. These disturbances are often the result of misuse, abuse, overuse, or pathology of the vocal folds but may also be psychogenic in nature. Fluency disorders are typified by a disruption in the flow and rhythm of speech characterized by excessive production of repetitions, blocks, or prolongations and disturbances in the speed or rate of speech. Speech therapy is prescribed or sought for the remediation of these deficits in articulation, voice, and/or fluency [1].

Speech therapy is usually provided by a certified speech–language pathologist, and is typically guided by treatment goals determined during the diagnostic assessment and in conference with invested parties, such as the family, teachers, physicians, and client. Therapy is provided either in individual sessions, in which the client works one-on-one with the speech–language pathologist to address treatment goals, or in groups, wherein a number of clients attend joint treatment sessions to address treatment goals. To address treatment goals, a treatment approach or program is employed. Treatment approaches are built on theoretical paradigms and developmental, physiological, or normative data. The selection of a treatment program or treatment principles should be based on empirical evidence of effective treatment in clients with similar deficits and characteristics. Speech therapy generally includes the step-wise remediation of specific deficit skill-sets using behavioral treatment techniques. Therapy techniques may make use of mirrors, recordings, video feedback, self-evaluation, diaries, games, toys, pictures, tongue blades, and other materials or biofeedback [2].

Speech therapy is often needed in populations that present with hearing impairments, developmental delays, cleft palate or lip, oral muscle insufficiency, autism, traumatic brain injury, and respiration and motor planning deficits. Speech therapy may also be warranted in otherwise typically developing children who present with a delay or disorder in the development of speech, voice, and/or fluency skills. Young children who have difficulty being understood may experience frustration and withdraw from communicating. Early assessment and intervention by a speech–language pathologist will help to alleviate frustrations for both the speaker and the listener. In general, the earlier one begins therapy after the diagnosis or insult that propagated the disorder, the better the prognosis of correcting and mitigating effects of the deficit [3].

Language therapy differs from speech therapy although deficits in both language and speech may coexist and be treated simultaneously, concurrently, cyclically, or blended together in a therapy session [4].

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Speech–Language Therapy

►Speech Therapy

Speed

►Dextroamphetamine (Dexedrine, Dextrostat)

Speed Naming

►Rapid Automized Naming

Spelling Disabilities

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Synonyms

Agraphia; Anorthography; Dysgraphia; Learning disability; Logagraphia

Definition

A neurologically-based impairment that affects an individual's knowledge of and memory for spoken and written language structure.

Concept of Spelling Disability

Individuals with spelling disability generally have difficulty analyzing and remembering sounds of the letters (e.g., j, v, s), syllables (e.g., pos, com, mem) and meaningful parts such as prefixes, roots, suffixes, and grammatical endings (e.g., pect, able, trans) of words in both spoken language and written language. Individuals with spelling disability have trouble remembering letters in words because they have trouble noticing, remembering, and recalling the features of language that those letters represent. Spelling disability is also identified as orthographic memory problem because of an individual's difficulty with memory for letters in written language [10].

Phases of Spelling Development

Since children's knowledge of the English spelling system follows a progressive pathway, spanning from novice to expert applications of letters, syllables, and meaningful parts of words [1], Ehri [4] classifies children's knowledge of the English spelling system into three distinct stages, semiphonetic, phonetic, and morphemic. Semiphonetic spellers generally rely on knowledge of letter names to generate spellings of words. Semiphonetic spellings therefore reflect an emphasis on boundary letter sounds (consonants) and an oversight of the medial sounds (vowels) because of reliance on sounds in letter names (e.g., WTR to spell *water)*. Phonetic stage spellers, unlike the semiphonetic stage spellers, tend to represent vowels and increased number of consonants in their spellings of English words. Advancement in their ability to connect letter names to their constituent sounds causes phonetic spellers to overemphasize letter sounds in spellings of individual words (e.g., BALAOSIS to spell *blouses*). Morphemic stage spellers move away from an exclusive reliance on letter-sound relations to use of word-based spelling patterns such as prefixes (e.g., in - *inadequate*), suffixes (e.g., able - *acceptable*), base words (e.g., *sign* – *signal*), consonant doubling (e.g., *flop* – *flopped*), and derivational relationships (e.g., *critic* – *criticize*).

The last three stages of Henderson's [8] spelling development model, within-word pattern, syllable juncture, and derivational constancy, are subsumed within the morphemic stage of Ehri's [4] spelling development model. Henderson's subdivisions of children's morphemic skills highlight transition of spelling development from an alphabetic base to a word-based and meaning-bearing subunit level. At the within-word pattern stage, spellers acquire knowledge of complex groups of letters, including vowel-consonant-silent e patterns (e.g., *rake*, *time*) and vowel digraphs (e.g., *train*, *bought*). Spellers acquire understanding of complex word-based patterns that support spelling of single-syllable words. Syllable juncture spellers, comparatively, learn use of consonant doubling (e.g., hop – *hopping*), prefixes (e.g., im – *immature*), and

suffixes (e.g., ance – *maintenance*) to spell multisyllabic words. The derivational constancy stage involves spelling of base and root words (e.g., bene – *beneficial*, *benevolent*, *benediction*).

From the preceding description of the phases of spelling development, it can be concluded that accurate spelling of words can take place when children learn to form consolidated connections between letter units (i.e., syllables) in written words and their sounds in pronunciations. Although good spellers can form complete connections between letter-sound units in words, which then facilitate accurate spelling of words, individuals with spelling disability often fail to establish full connections between letters-and-sounds in words which then constrain their ability to spell words accurately.

Research on Spelling Proficiencies

In recent years, researchers have compared spelling performances of individuals with and without spelling disability to determine similarities and differences in their ability to represent letter-sound relationships in spellings of different types of words. Manis et al. [9], for example, compared the phonological, orthographic, and spelling skills of children with and without dyslexia. Spelling processes were measured with a pseudoword spelling task (e.g., /vam/, /wifest/, and /flith/) and an irregular word spelling task (e.g., *people*, *enough*, and *business*). Orthographic processing was measured with two tasks, orthographic verification and homonym verification. The orthographic verification task required that on seeing spellings like, *woman*, *surprise,* and *library* (i.e., accurate spellings) or *streat, throte,* and *cumpleat* (i.e., inaccurate spellings) on a computer screen, children press "yes" or "no" to indicate whether the spellings were correct or wrong. The homonym verification task required that children identify a homonym as correct (e.g., "Monday is the first day of the week." – *week*) or incorrect (e.g., "The bear was hungry." – *bare*) after listening to a sentence read aloud by the experimenter and viewing display of a homonym. Phonological processing was measured with two tasks, phoneme deletion and pseudoword pronunciation. The phoneme deletion task asked children to repeat a pseudoword (e.g., *blif*) pronounced by the experimenter and to then pronounce the same pseudoword without one of the phonemes (e.g., *blif* without the /f/ - *bli*). The pseudoword pronunciation task asked children to pronounce pseudowords (e.g., *yaid*, *skoce*, *metion*). Data analyses indicated that the age-matched and reading-level matched children scored significantly higher than children with dyslexia on phonological, orthographic, and spelling tasks.

In an additional study focused on spelling development, Swanson and Ramalgia [13] compared the spelling performances of seventh, eighth, and ninth grade children with learning disabilities and reading-level-matched and spelling-level-matched younger elementary grade children without learning disabilities. Children were administered three graded word lists, one matched to their spelling level and two lower than their spelling level. Each graded list included 10 phonetic (i.e., regular word patterns) and 10 nonphonetic (i.e., irregular word patterns) words. Spellings of regular and irregular words were analyzed by classifying misspellings into three categories: semiphonetic errors – omission of medial and vowel sounds (e.g., *lidl* for *little*); phonetic errors – vowel substitutions (e.g., *fullist* for *fullest*), omission of silent letter (e.g., *new* for *knew*), and substitution of consonant grapheme for a phoneme (e.g., *wher* for *wear*); and morphemic errors – consonant doubling (e.g., *wadding* for *wading*), addition of an inaccurate marker letter (e.g., *ris* for *rice*), two vowel letters for long vowels (e.g., *tier* for *tire*). Analysis of regular and irregular word misspellings indicated that children with and without learning disabilities, who had lower scores on a standardized spelling test used to select and classify study participants, produced higher number of semiphonetic errors with an over reliance on boundary letters and slighting of the medial letters. Comparatively, children with and without learning disabilities, who had higher spelling score on the standardized test, produced misspellings that were phonetic in nature and exhibited overgeneralization of letter-sound relationships. Morphemic errors produced by children with and without learning disabilities were comparable.

Instruction for Spelling Development

Individuals with spelling disability generally do not use appropriate strategies to spell words and are not efficient at spelling words accurately without instruction [6]. Therefore, explicit spelling instruction is essential for developing poor spellers' ability to spell words accurately [3] and spelling instruction should emphasize knowledge of the language structure, specifically knowledge of sound-letter combinations and spelling patterns [7]. Furthermore, individualized instruction is recommended because successful learning of spelling patterns requires that teaching be adjusted to the cognitive abilities of the learner [2]. Consequently, teachers are advised to be mindful of the number of words selected for instruction of individuals with spelling disability. Careful selection of words is vital because individuals with spelling disability, compared to individuals without spelling disability, generally require more time to learn spellings of fewer words [12]. Morris,

Blanton, Blanton, and Perney [11] also suggest lowering of the difficulty level of spelling words to facilitate learning of an appropriate number of words matched with disabled spellers' knowledge of and memory for spelling patterns in words. In sum, improved spelling performance requires that individuals with spelling disability receive (a) sufficient time to learn word spellings, (b) feedback for correcting misspellings, and (c) spelling practice with minimum teacher supervision [5].

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Sperm

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Synonyms

Male gamete; Male germ cell; Spermatozoa; Sperm cells

Definition

Male reproductive cells

Description

Human sperm are invisible to the naked eye and consist of three parts. The head of the sperm is called the acrosome and contains 23 chromosomes, the father's genetic contribution to the offspring. The chromosomes contained inside the sperm will determine whether the offspring is male or female. The head also holds enzymes that will help the sperm penetrate the outer layer of the egg. The short midsection of the sperm, or body, contains mitochondria to fuel the sperm's journey to the egg. The longest part of the sperm is the mobile tail, or flagellum, which propels the sperm forward.

Sperm production begins when testosterone, luteinizing hormone (LH), and follicle-stimulating hormone (FSH) activate the male testes during puberty. Spermatogenesis, or the creation of sperm, works best when the temperature of the testes is lower than that of the body. For this reason, the testes hang away from the body in the thin skin of the scrotum. Sperm maturation takes 72–74 days. Sperm will grow in the testes for several weeks, then move from the rear of each testicle to the epididymis, where growth continues for another 2–21 days. Mature sperm move through a small tube called the vas deferens into the seminal vesicle, where they are temporarily paralyzed by carbon dioxide. The seminal vesicle and prostate secrete fluids that will join with the sperm to become seminal fluid (or semen). At ejaculation, sperm and seminal fluid move through the vans deferens and to the urethra, a tube inside the penis, from which they are released. A typical ejaculation includes an average of 100–300 million sperm, with about 75% being motile and even fewer being healthy enough to fertilize an egg.

Sperm die quickly outside of the body, and only survive from 3 to 5 days in optimal conditions, which can be a challenge. Lubricants, saliva, and urine kill sperm. In the vagina, high acidity levels are detrimental to sperm, slowing their movement or killing them. During ovulation, a woman secretes cervical fluid that lowers the acidity of the vagina, assisting sperm in their journey. Similarly, the alkaline seminal fluid protects sperm against the acidic vagina and provides fructose to help fuel the sperm's journey.

Sperm must travel through the cervix and into the uterus, which is less acidic but contains white blood cells that can destroy the sperm. From the uterus, sperm enter one of the two fallopian tubes located on either side of the uterus. Chemical signals provide some information to sperm about where the egg is located, although many

sperm enter the wrong tube. Cilia within the fallopian tube move the egg toward the uterus, creating a current against which sperm must swim and a trap that sperm must avoid. In addition to these environmental hazards, if sperm from two different males are inside the reproductive tract simultaneously, the sperm will engage in a competition for fertilization. Ultimately, only a few hundred sperm reach the egg.

During this journey, sperm move an average of two to three mm per minute; however, there is individual variability. In addition, some sperm pause temporarily at the cervix or outside of a fallopian tube. Having sperm arrive at different times increases the chance that a sperm will be present during the short 24 h lifespan of an egg. Sperm containing a Y-chromosome, coding for a male offspring, are lighter and tend to travel faster; however, they also live for a shorter period of time. Sperm containing an X-chromosome, coding for a female offspring, are slower but hardier.

To enter the egg, sperm must cross the tough outer membrane of the egg called the zona pellucida. Enzymes in the acrosome break down this wall over a period of around 20 min. The sperm must then penetrate the inner part of the egg, gaining access to the egg's genetic material. The sperm's tail detaches and the head dismantles to allow fertilization, and the resulting cell is a zygote.

Sperm quality varies widely over the course of the day. Abnormal sperm are the most common cause of male infertility. Several factors can affect the quality, mobility, and number of sperm. For example, hormonal imbalance, environmental toxins, poor nutrition, illness, stress, and high testicular temperature have all been linked to spermatogenesis failure. Research has revealed that substances such as nicotine, cocaine, marijuana, steroids, and excessive amounts of alcohol reduce a man's sperm count and quality. Legal and illegal medications also can impact male fertility. These findings suggest that both mothers and fathers play a critical role in conception.

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Sperm Cells

▶Sperm

Spermatozoa

▶Sperm

Spew

▶Purging

Spinal Cord

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Definition

The spinal cord is one of the two major divisions of the Central Nervous System (CNS), in addition to the brain, which connects rostrally to the inferior portion of the medulla and extends down the back serving as a primary highway in which signals are sent in between the CNS and Peripheral Nervous System (PNS).

Description

The spinal cord, in combination with the brain, constitutes the two primary structural divisions of the CNS which play different roles in carrying out functions. Structurally, the spinal cord has thirty segments divided amongst four divisions (Cervical, Thoracic, Lumbar, and Sacral divisions) and one additional Coccygeal segment. Each segment has a spinal nerve on both the right and left that are essential in the transmission of impulses to and from the CNS from and to the PNS (nerves outside of the CNS), musculature, and other body regions and structures [1]. In this way, the spinal cord may be viewed as the express communication highway providing a link between the body experiencing and receiving sensations and the

brain which perceives and interprets this information. This illustrates a bottom-up transmission however a top-down transmission occurs via the spinal cord as well. Specifically, neurological impulses regarding functions, such as movement, originate in the brain and are transmitted down through the spinal cord to the peripheral structures which will serve to carry out the movement. Given its role in both the reception of sensation and the transmission of motoric output, damage to the spinal cord may cause deficits within either domain [2]. For example, damage to the spinal cord can lead to complete or partial loss of sensation and/or movement in those systems and areas outside of the CNS. Furthermore, the nature of the impairment corresponds with the location and degree of insult. For example, complete damage of the spinal cord at the Cervical level (i.e., highest level) can lead to quadriplegia (i.e., loss of all movement and sensation below the neck) whereas partial damage may simply cause weakness in movement or a decrease in sensation perception. Furthermore, complete damage at a lower level may merely cause paraplegia (i.e., loss of all movement and sensation below the waist) whereas partial damage may again simply cause weakness in movement or sensation from the waist down.

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Spinal Cord Contusion

►Spinal Cord Injury

Spinal Cord Injury

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Synonyms

Cord injuries; Post-traumatic myelopathy; Spinal cord contusion; Spinal cord laceration; Spinal cord transection; Spinal cord trauma; Spinal injuries

Definition

A spinal cord injury (SCI) may stem from traumatic damage to the spinal cord which results in a bruise (contusion), a partial tear, or a complete tear (transection) in the spinal cord. Non-traumatic SCI may be caused by an infarction (stroke), arthritis, cancer, blood vessel problems or bleeding, inflammation (transverse myelitis), infections (meningitis), disease, or degeneration of the disks and vertebrae in the neck (cervical spondylosis). The damage may cause a loss of sensation (feeling) and motor (muscular) control and may result in paralysis.

Description

Spinal cord injuries affect the whole body; however, impairments in sensation and/or motor ability typically occur below the site of the injury. For this reason, some persons have altered functioning in their legs and lower body only (paraplegic), while others have altered functioning involving all four limbs (tetraplegic). As such, SCI is classified according to the child's degree of loss of motor and/or sensory function.

Pairs of nerves are connected to the spinal cord in the space between two adjacent vertebrae. The nerves are named for the vertebrae where they exit the spinal cord. There are five sets of these nerves and they are defined as follows: (1) C1-8 nerves exit the spinal cord in the cervical region or in the neck; (2) T1-12 nerves exit the spinal cord in the thoracic region, or the chest; (3) L1-5 nerves exit the spinal cord in the lumbar region or the lower back; (4) S1-5 nerves exit the spinal cord in the sacral region or near the pelvis; and, (5) the coccygeal nerves exit the spinal cord near the coccyx, or tailbone [1].

Injury to the spinal cord may damage any one or more of these nerves. When nerves are damaged, functions such as urination, sexual function, sweating, blood pressure, etc., may be affected. Symptoms of spinal cord injuries may include muscle weakness, loss of voluntary muscle movement, breathing problems, loss of feeling, and loss of bowel and bladder function.

Diagnosis of SCI is made with a comprehensive physical examination, a study of symptoms, and diagnostic testing. Diagnostic tests may include X-rays, computed tomography scans (CT scans), and magnetic resonance imaging (MRI) scans of the spinal area.

Initial treatment for spinal cord injuries is immobilization. Steroid injections may be given to reduce inflammation and swelling. Currently, no treatments are available to make a spinal cord grow back to its pre-injury condition. However, some patients with SCI do recover at least a portion of their ability to move and/or feel below the level of injury. Rehabilitation focuses on

fostering independence and reintegration into the community by helping individuals with spinal cord injuries avoid complications and optimize those bodily functions they do control to aid in mobility and movement. Accurate predictions of prognosis for SCI, particularly in the acute phase, are very difficult. Current evidence suggests that recovery, if it occurs, typically transpires on a timeline that starts between a week and 6 months after injury. Impairment remaining after 12–24 months is likely to be permanent. However, there are case reports of small improvements occurring for up to two years or longer.

In the United States, approximately 10,000 individuals sustain a SCI each year. Approximately 3–5% of those injuries occur among children younger than 15 years of age and 20% are younger than 20 years. Motor vehicle accidents are the main cause of injury in pediatrics with medical/surgical complications, violence, falls, and sporting accidents also contributing [2].

Relevance to Childhood Development

The psychological challenges children face are different from those seen in adults with similar injuries. Children respond to their injury according to their developmental stage at the time, and this response continues to change as the child grows.

A major factor to consider in any child's mental health is the influence of the family members on the child's psychosocial adjustment process and vice-versa. In order to provide adequate emotional support, it is essential to pay attention to the unique and different challenges faced by each individual family member in addition to the ones the family faces as a whole.

The parents or caregivers of a child with SCI are often traumatized. They can experience feelings of anger, sadness, and guilt. They must learn a great deal of medical information about how to care for their child, while simultaneously providing emotional support. It is often the case that the caregivers have a difficult time parenting their child in the same way as before the injury. Specifically, parents frequently respond to the new situation by being overprotective and setting fewer limits or providing less discipline.

During the initial hospital stay and on an ongoing basis, the parent/caregiver must constantly ensure that the appropriate and necessary modifications are made at home, at school, and at any other location to where the child travels. In addition, the caregiver will likely face financial challenges secondary to possible employment changes and extensive medical, equipment, and therapy bills. Finally, after the initial learning and adjustment process has been conquered, the parents/caregivers need to support their child in creating future life goals and a plan to meet those goals. Even though it is common for parents/caregivers to have difficulty letting go of their child as she or he grows up and develops, that transition can be even more challenging when the child has a chronic physical disability.

Children with SCI experience unique challenges that can change depending on their age. When the child is injured at birth or in early childhood, he or she relies largely on the parents or caregivers for total support. At school age, the child is developing their sense of identity and can feel anxious or sad as a result of their physical limitations and having a perceived lack of control over their environment. The child is also learning how to socialize with peers. During adolescence, body image, sexuality, driving, and peer relationships become central issues. Emotions run high during this developmental stage in general and the teen with SCI is no exception. It is the job of adolescents to learn to separate from their parents/caregivers and to take on increased responsibility for their own medical care.

The transition to adulthood (including medical, social, emotional, financial, educational, vocational, and leisure aspects) is a process through which the young adult must navigate with support from her/his parents/caregivers and medical team.

The whole family of a child with SCI will likely go through some changes. It is important to take into consideration the way the family was functioning before the injury occurred, as this will affect their functioning moving forward. There may be a shift in the family dynamics, including marital, sibling, and parental relationships, as a result of the child's SCI. The increased amount of time it takes to care for a child with SCI takes away from leisure time. This decrease in "play time" occurs for the child, the siblings, and the parents/caregivers.

The overall goal in pediatric SCI is to return the child and the family as quickly and fully as possible back to their lives in their own communities with the appropriate support services in place. The child should be reintegrated back into school, social activities, sports, and chores or jobs as soon as medically possible. It is also important to monitor the child as they grow to ensure that they're keeping up with peers over time.

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Spinal Cord Laceration

►Spinal Cord Injury

Spinal Cord Transection

►Spinal Cord Injury

Spinal Cord Trauma

►Spinal Cord Injury

Spinal Injuries

►Spinal Cord Injury

Split Brain

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Synonyms

Hemispheric differences; Laterality

Definition

"Split Brain" is a term used to describe an early method of severing the corpus callosum and separating the two hemispheres of the brain. This was done to reduce the spread of seizures. Following this procedure differences were found between the left and right side of the brain; most of this research is attributed to Sperry [1].

Description

Split brain is a relatively rare situation which is usually the result of all other options being exhausted in attempting to control epilepsy and epileptic seizures. It involves the severing of a dense group of nerve fibers which connect the left and right hemispheres of the brain. Agenesis of the corpus callosum is often congenital and is secondary to a malformation that following surgical severing seems to provide clearer left-right differences. The result of having a split brain is typically the inability to name an object that is presented within the left visual field due to the information from the left visual field being only sent to the right side of the brain where speech is typically not localized.

There is some debate within the research over the idea of competing hemispheres or "two minds" which result from a split brain. Some patients have been seen after surgery to appear as though they have separate goals. For example, the left hand may reach for one object of clothing while the right reaches for a completely different article of clothing. Typically, these issues resolve themselves within a short period of time after surgery and patients report having a cohesive consciousness afterwards. Conclusions about the functioning of normal brains based upon those with epilepsy have been difficult to substantiate.

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Spoken Language

►Verbal Skills

SSQ

►Barkley School Situations Questionnaire

Stability

►Reliability

Stage 5 Sleep

►Rapid Eye Movement Sleep

Stage Sequence of Ego Epigenesis

►Erikson's Stages of the Life Cycle

Stages 5 and 6 of Moral Judgment Development

►Postconventional Morality

Stages of Identity Development

►Erikson's Stages of the Life Cycle

Stages of Psychosocial Development

►Erikson's Stages of the Life Cycle

Stammer

►Stuttering

Standard

►Norms

Standard Celeration Charting

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Synonyms

Celeration; Educational aims; Fluency; Frequency; Precision learning; Precision teaching; SCC; Timings

Definition

The Standard Celeration Chart (initially called the Standard Behavior Chart) is used to observe and improve human learning and interaction. The chart shows the frequency of performance and its celeration, i.e., growth of learning across time. Frequency, whose formula is F=Count/Time, tells what happened during a specific time. Celeration, whose formula is C=Count/Time/Time, or Frequency/Time, tells what happens across the longer period of time – weeks, months, years, or decades. All Standard Celeration Charts retain and present the original data in the form of frequency and celeration. The most common use is in special and regular education where the 1-min timing has resulted in research-developed frequency and celeration aims for academic behaviors. Data-based frequency aims are also emerging for inner behaviors.

Description

Pavlov used frequency, a standard unit in the measurement of scientific phenomena, to measure physiological responses in dogs. Skinner used frequency, free operant behavior, and the cumulative recorder to measure the behavior of rats and pigeons. Lindsley, with his background in engineering and experimental psychology, brought to psychology and education the most powerful and scientific use of measurement applied to human behavior. He became the first person to measure human behavior continuously. In 1953, he took lessons learned in Skinner's operant laboratories into his home and continuously recorded the toy-playing behavior of his infant daughter, Cathy. He also began to measure the behavior of schizophrenics at Metropolitan State Hospital in Waltham, Massachusetts, and coined and first published the term "Behavior Therapy," in the 1954 Boston telephone directory: Studies in Behavior Therapy. In 1965, he developed the standard behavior chart, now described as a family of Standard Celeration Charts – standard measurement charts for human behavior in daily, weekly, monthly, and yearly time periods. By 2000, the vast

majority of the million-plus charts came from education. The chart is not a teaching method; rather it is a system for monitoring the effectiveness of any method of teaching, learning, or changing human behavior.

Since 1967, educators and others have used the standard celeration chart to observe and improve human behavior. The people behaving have ranged from fetuses to students to those in their 80s.

Frequency and Celeration

Because of the design of standard celeration charts – the standard is the 34 degree angle of the doubling line from corner to opposite corner – all *ac*celerations and *de*celerations are *standard* no matter which chart. Using this graphic makes two critical elements apparent. First, behavior grows by *multiplying*, not by adding. Second, the chart makes one look at not only the *frequency* of a person's performance, but also at the *growth of learning across time*, i.e., the *celeration*. Frequency is performance: It tells what happened during one time period, but by itself it tells little about learning. The formula is F = C/T, or frequency equals count divided by time, e.g., a count of 77 behaviors in 1 min has a frequency of 77; a count of 192 in 10 min has a frequency of 19.2. To see whether performance accelerates or decelerates, we need to measure it across time. Since 1971, we have called this change in learning celeration, a word derived from the root word of acceleration and deceleration. Its formula is C=C/T/time, e.g., the growth of frequency *across* a week on a daily chart, or across a month on a weekly chart. Both frequency and celeration are standard measures of human behavior.

Different from most graphs, the standard celeration chart retains and presents the original data. Because of the SCC's design, the charter plots only frequency so the chart always displays performance within the time period.

Standard Celeration Charts

The *Daily Standard Celeration Chart* measures any human behavior that occurs on a daily basis. It goes from 0.00069, or one time per 24-h day, up to 1,000 per min. It has one behavior per day at the bottom, one behavior per minute in the middle, and 1,000 behaviors per minute at the top. Any line drawn parallel to the corner to corner line means learning has changed by ×2, an acceleration or improvement. From the top left to the bottom right the change is a ÷2, a deceleration, an improvement when errors, inappropriate behaviors, or negative inners are counted. Each Daily Chart has 140 days across it.

Three categories of daily behavior often monitored include: (1) academic learning – e.g., see say (read) words, see write quadratic equations, see say (memorize) musical notation or the Periodic Table, think say American government facts, see say parts of a microscope or skeleton; (2) other outer behaviors such as interrupts, greets people, sets goals, makes choices; or all-day charts of fetal movement; and (3) inner behaviors such as has thoughts of a former wife, feels jealous, pleasant and unpleasant feelings about oneself.

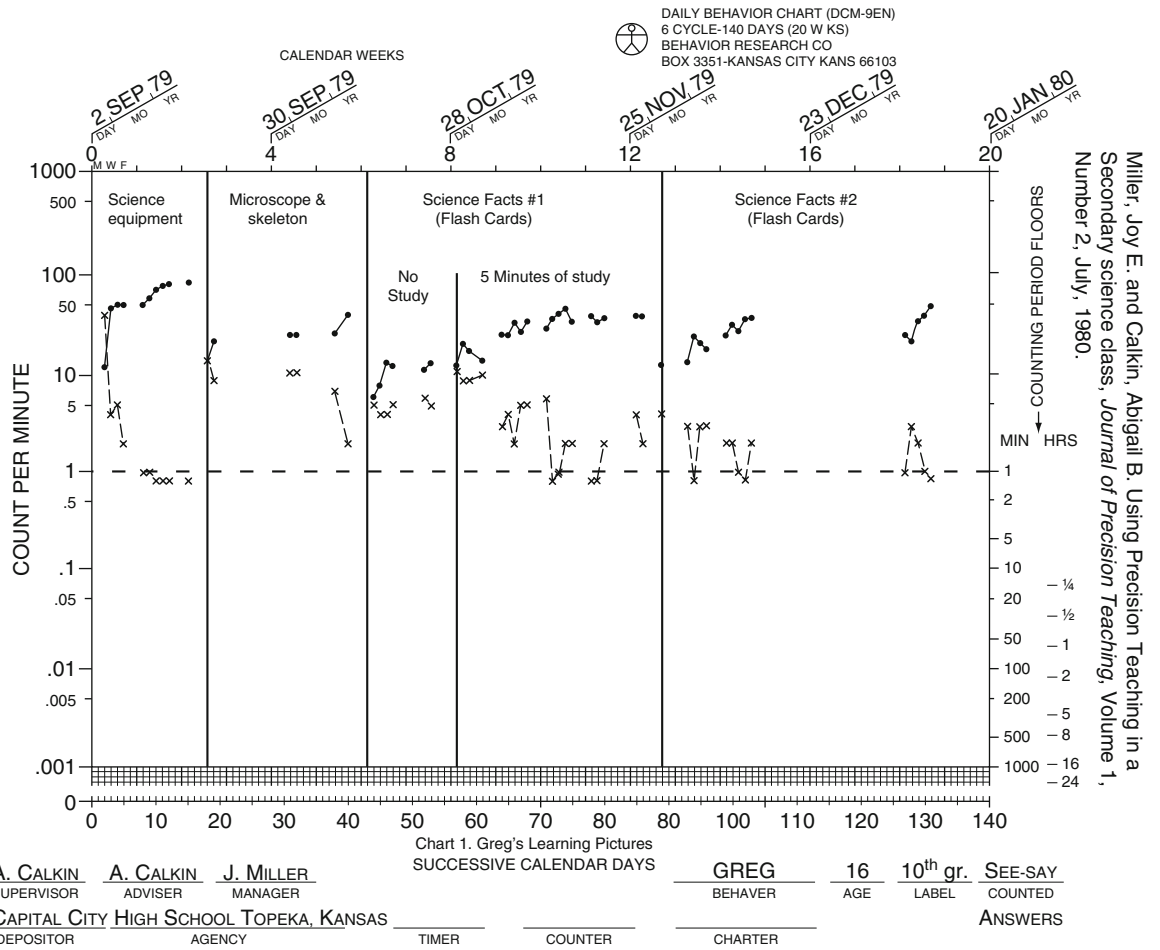
The daily chart in Fig. 1 shows Greg learning science facts by see say – he *sees* the object and *says* its name or he *sees* the front of the flashcard and *says* the information on the back.

In four of the five phases, the corrects go up (by ×1.8, or an 80%, increase per week) and the errors go down, most dramatically in the first phase by a ÷10 per week. In the third phase, Science Facts #1 (Flash Cards) No Study, the corrects and errors both increased. Seeing from the collection of charts that learning was not occurring well for about fifteen of her 19 students, the teacher made the decision to add 5 min of study time. The students' correct responses continued to accelerate and their errors stopped increasing and began to decelerate. Given that the chart is standard, the teacher could quickly see if each student learned and could tell whether she had made the correct teacher decision. Such is the analysis of learning behavior that the standard celeration chart offers.

Because the chart uses a standard scale to display change numerically, when looked at, each of these charts shows immediately whether the line went up, down, or stayed the same. The steepness of the line occurs not because of a differently graphed scale on the left or across the bottom but because the behavior changed.

The Uses of Standard Celeration Charting

In 1967, Lindsley formed the Behavior Bank to collect, analyze, summarize, and display facts about human behavior [1]. Banked projects include academic, personal management, and inner behaviors. *Handbook of Precise Behavior Facts* contains summaries of 11,947 standard celeration chart projects on people's learning. The banked information contains each pinpoint, the body part involved, the supervisors and contributors of the projects, the instructional technique, and the reward or punishment for each project as well as visual displays of the data summary for any pinpoint which had at least five charts banked; the highest, middle, and lowest frequency; and the most rapid (steepest), middle and the slowest (flattest) celeration. By 1973, the Behavior Bank contained 16,376 projects. Considering these data were sufficient to draw precise and inductively discovered conclusions about human behavior, Lindsley stated there were eight Laws of Human Behavior. The bank closed in 1974.



Standard Celeration Charting. Fig. 1. Daily behavior chart.

The 1-min timing is commonly used to implement change in precision teaching and in precision inner behavior. The first use of this important behavior change technique began in Ann Starlin's classroom in Eugene, Oregon in April 1968 to assist her students in their learning of geometric figure names; it is now widely used when helping students improve such academic areas as reading, math, social studies, and science skills, as well as improve the inner behaviors of pleasant thoughts and feelings. As early as 1970, Clay Starlin and Haughton had developed frequency aims for academic behaviors. Since then and as a result of hundreds of thousands more charts, academic and inner behavior frequency aims have been revised upwards and celeration aims also established.

In addition to helping students learn in regular and special education classrooms, learning centers, and universities, standard celeration charts have been used in many different fields – nursing, social work, psychology, inner behavior, business, analyses of historical and governmental events, administration, and geriatrics to name some. As well as in the United States, the standard celeration chart, also known as precision teaching for its dominant use in education, is also used in the Republic of Ireland, the United Kingdom, Norway, Australia, South Africa, and Canada.

Relevance to Childhood Development

Standard celeration charting is used in the measurement and monitoring of the behaviors of fetuses, infants, preschoolers, and kindergarteners.

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Suggested Resources

Articles on precision teaching, and the use of the standard celeration chart with reading, inner behavior, children with autism, college students, and brain trauma rehabilitation. Available: http://www.ejoba.org

Standard Scores

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Synonyms

Derived score; Deviation IQ; GRE/SAT Score; Normal Curve Equivalent (NCE); Normal Score; Norm-referenced scores; Sigma Score; Stanines; Sten Score; T Scores; Z Score

Definition

A score that is derived from an individual's raw score within a distribution of scores. The standard score describes the difference of the raw score from a sample mean, expressed in standard deviations. Standard scores preserve the absolute differences between scores. The standard score (Z) is computed with the following formula:

$$Z = X - M/SD$$

where X = the raw score, M = the mean, and SD = the standard deviation.

Description

The use of standard scores allows the set of raw scores to be "normalized" or statistically adjusted to fit the normal distribution or "bell shaped curve," allowing a more precise and meaningful comparison of scores across individuals in a sample. Standard scores in conjunction with standard deviations above and below the mean are often used to illustrate individual strengths and weaknesses on a measure, showing where an individual falls on the normal distribution [1]. They may also be used with some measures as a criterion score for classification purposes or as a descriptor of traits or symptoms on assessment measures.

Commonly used Standard Scores

Z score: Mean of 0, standard deviation of 1. Simplest and most common standard score, used to convert raw scores to other types of standard scores. For example, to covert a Z score to a T score (below), the following formula is used:

$$T = z(SD) + M$$

where SD is the standard deviation of the new standard score and M is the mean of the new standard score, in this case SD = 10 and M = 50.

T Score: Mean of 50, standard deviation of 10. Commonly used to express scores from psychological tests and behavior rating scales such as the MMPI-2 and the BASC-2.

Deviation IQ: Mean of 100, standard deviation of 15. Sometimes called the "Wechsler score," commonly used to report scores from most intelligence tests.

Stanine: Mean of 5, standard deviation of 2. Short for "standard nines," a range of scores from 1 to 9 that allows a gross classification of below average-average-above average scores across the normal distribution.

Sten: Mean of 5.5, standard deviation of 2. Short for "standardized ten," a range of scores from 1 to 10. Used in reporting of scores from the 16PF personality questionnaire, for example.

Normal Curve Equivalent (NCE): Mean of 50, standard deviation of 21.06. Based on percentile rank, the NCE creates equal interval percentile scores from 1 to 100.
SAT/GRE Score: Mean of 500, standard deviation of 100 [2].

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Standardized Testing

►Norm-Referenced Testing

Stanford Binet

►Stanford-Binet Intelligence Scales

Stanford-Binet Intelligence Scales

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Synonyms

Stanford Binet; SB5; Stanford-Binet intelligence scales, Fifth Edition

Definition

The Stanford-Binet Intelligence Scales is an individually administered measure of cognitive abilities. It was first developed in France in 1905 as the Binet–Simon scale, but adapted for use in the United States at Stanford University in 1916 where it obtained its current name. The instrument has undergone several revisions over the past century, and the Stanford Binet Intelligence Scales – Fifth Edition (SB5) is the most recent revision, which was published in 2003. Like previous editions, the SB5 is one of the most widely used psychometric instruments, and is often included in clinical, neuropsychological, and psychoeducational evaluations. The SB5 can be administered to individuals as young as 2 and over 85 years of age. The SB5 has a hierarchical structure in which overall intellectual ability (the Full Scale IQ score) is comprised of two Domains (Verbal and Nonverbal IQ) and five Factor Indexes (Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual Spatial Reasoning, and Working Memory).

Description

The Binet–Simon Scale was developed over a century ago by Alfred Binet and Theodore Simon [1]. First published in 1905 and revised in 1908 and 1911, the Binet–Simon Scale was part of an effort to differentiate the intellectual abilities of Parisian school children and to classify levels of mental retardation.

Lewis Terman and his colleagues at Stanford University translated the Binet–Simon Scale into English, adapted it for use in the United States, and published the Stanford-Binet Intelligence Scale in 1916 [2]. Based on an age-scale format, the test performance of this standardization group was analyzed to determine which items were passed by the majority of test takers of a particular age. From these administrations, tables of "mental age scores" were derived, which allowed the performance of subsequent test takers to be compared with the standardization group. The 1916 edition was noteworthy for the use of the intelligence quotient, which represented the ratio of mental age to chronological age. A mental age score that was higher than the examinee's actual "chronological age" denoted above average performance; conversely, performance below the chronological age denoted below average performance. However, the distribution of scores was not constant across different ages; thus, scores by individuals at different ages were not directly comparable [3].

Revisions of the Stanford-Binet in 1937 and 1960 represented efforts to improve the standardization of the instrument and improve the representativeness of the sample on which the test was normed. The 1937 edition expanded the standardization group, created alternate versions of the test (Forms L and M) to facilitate readministration, and included more nonverbal items at younger ages. The 1972 revision combined the best items from the two versions of the 1937 edition and was dubbed the Stanford Binet Intelligence Scales, Form L-M. The standardization sample for this revision was the first to include African Americans and Latin Americans, as well as European Americans. Form L-M replaced the age-scale format that was introduced in the 1916 edition with a point-scale format, in which performance is based on scores that are converted into standard scores. Unlike ratio/mental age-based intelligence quotients, the mean and standard deviation of standard scores remain constant; thus, scores at different ages are comparable. These

early editions provided only one score, a measure of overall ability, and have been criticized for overemphasizing verbal abilities and rote memory while giving little consideration to other types of abilities that are hypothesized to underlie general intellectual ability (e.g., nonverbal abilities, visual perception, and spatial skills) [3].

The Stanford Binet Intelligence Scale, Fourth Edition (SB:IV), which was published in 1986 [4], was based on a four-factor hierarchical model. At the first level was a general intellectual factor ("g"), which was reported as the Test Composite Score. The four cognitive factors were Verbal Reasoning abilities, Abstract/Visual Reasoning abilities, Quantitative Reasoning, and Short Term Memory, which were reported as Standard Age Scores. The SB:IV was standardized on a group of over 5000 individuals (much larger than previous editions) that were similar to 1980 U.S. Census data in regard to gender, race, ethnicity, geographic region, community size, and socioeconomic status.

The SB5 was revised over a period of 7 years and published in 2003 [5]. The SB5 was normed on a sample of 4,800 subjects stratified to match variables from 2001 U.S. Census data vis-à-vis age, sex, ethnicity, geographic region, and education level. Data were also reported regarding community size and type of school attended. In addition, subjects from special groups were included in the sample: individuals with documented Learning Disabilities, Attention Deficit Hyperactivity Disorder, Mental Retardation, speech impairment, and hearing impairment.

The standardization sample of the SB5 was segmented into groups ranging from 2 years to above 80 (a segment that included individuals as old as 96 years). The inclusion of these age groups drastically increased the age groups to which the SB5 can be administered. The SB5 can be administered to individuals as young as 2 and over 85 years of age, whereas the 4th ed. was appropriate only for ages 2–23 years. A strength of the SB5 is that an individual's cognitive development could be monitored continuously via the same scale over a long period of years due to the wide age span of the test. However, due to a phenomenon known as the Flynn Effect [6, 7], which describes the trend for intellectual abilities in the general population to increase over time, it is necessary for tests to be revised periodically. Consequently, it is unlikely that any one individual would be monitored for more than approximately a 20-year span of time with the same version of any test. In addition to increasing the age range from previous editions, the SB5 increased the range of possible IQ scores. The SB5 is also theoretically linked to the Woodcock-Johnson III Tests of Achievement to facilitate the diagnosis of learning disabilities.

The SB5 Technical Manual [8] indicates that the test developers took extensive measures to assure that the instrument is culturally fair. Test items underwent "logical analysis" and were eliminated or altered if considered offensive or likely represent a construct differentially across demographic groups. Items also underwent empirical analysis of differential item functioning, item response theory, and construct-related studies of item fairness; items with poor demographic fairness were eliminated.

The SB5 has a hierarchical structure. At the first level is an overall measure of cognitive ability, the Full Scale IQ. At the second level are two domains (Verbal and Nonverbal) and five Factors (Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual-Spatial Reasoning, and Working Memory). A third level consists of ten subtests, each simultaneously representing a domain and a factor (e.g., Verbal Fluid Reasoning). A fourth level consists of five or six testlets per subtest. Testlets are defined as sets of three to six items clustered into functional levels or levels of difficulty. The fifth level of the hierarchy consists of individual testlet items [9].

The ten subtests yield the Full Scale IQ score. Five of the subtests comprise the Verbal Domain and yield the Verbal IQ score, and five of the subtests comprise the Nonverbal Domain, yielding the Nonverbal IQ score. The Verbal subtests are presented with oral or printed directions and responses are largely verbal. In contrast, Nonverbal tasks have lower language demands, although they are not entirely nonverbal. They are presented with pictures, manipulatives, and brief oral directions, and responses involve gestures, manipulation and brief oral responses. Each Verbal subtest corresponds with a Nonverbal subtest and these pairs of Verbal and Nonverbal subtests comprise the five Factor Indexes. In addition, the SB5 provides an optional Abbreviated IQ score, which is based on scores from two subtests: Nonverbal Fluid Reasoning and Verbal Knowledge.

The SB5 is partially based on the Cattell–Horn–Carroll (CHC) theory of intelligence [10]. Briefly, CHC theory describes intelligence as composed of ten broad abilities: crystallized intelligence, fluid intelligence, quantitative knowledge, reading and writing, short-term memory, visual processing, auditory processing, long-term storage and retrieval, processing speed, decision speed/reaction time. The SB5 measures five of the factors described by CHC theory but prominently includes Verbal and Nonverbal Domains even though this dichotomy is not a part of the theory. It has been noted that it is not clear when test interpretations should be based on the two domains or the five factors [11].

In contrast with earlier editions of the Stanford Binet, IQ and Factor Index scores on the SB5 are reported as standard scores that have a mean of 100 and standard deviation of 15, which is a metric that is consistent with most other widely used ability tests. Subtest scores of the SB5 are reported as scaled scores, which have a mean of 10 and standard deviation of 3.

The SB5 utilizes a routing procedure in which the examinee's performance on a routing subtest determines starting level for other subtests within the same domain (i.e., Nonverbal or Verbal). The purpose of the routing procedure is to reduce testing time and examinee fatigue. The estimated time to administer all ten subtests is 45–75 min; however, shorter versions are sometimes appropriate. The SB5 generates an Abbreviated IQ score based on the examinee's scores on the two routing subtests. This abbreviated assessment is estimated to take 15–20 min. The Examiner's Manual also indicates that the examiner may chose to administer only the five subtests within a given domain in order to obtain a Nonverbal IQ score or a Verbal IQ score. For example, the Examiner's Manual specifies that the Nonverbal IQ score may be the most appropriate metric for examinees with communication disorders, hearing impairment, autism, or limited English language backgrounds. Conversely, the Verbal IQ score might be the most appropriate measure for examinees with orthopedic impairments or motor skills deficits [9].

Statistical reliability of the SB5 has been measured via multiple methods. Reliability of a test score refers to consistency across sets of items, time, and other conditions. The technical manual presents reliability coefficients for IQ scores and Factor Index scores, all of which were .90 or above (out of a maximum possible value of 1.0), which indicates a very high level of reliability. Test–retest reliability was assessed by retesting a group of subjects after a number of days (between 1 and 39 days). Stability coefficients were 0.89 and above for the IQ scores, and 0.81 and above for the Factor Indexes. Interscorer agreement refers to the correlation of item scores for the same examinee when rated by independent examiners. The median coefficient of interrater reliability was 0.90 [8].

Validity refers to the extent to which an instrument measures the trait that it purports to measure. Convergent validity measures the correlation between different instruments designed to measure the same traits. Studies of convergent validity indicated that the SB5 is highly correlated (median correlation $r = 0.83$) with the two editions of the Stanford Binet that preceded it, as well as the Wechsler Preschool and Primary Scale of Intelligence – Revised, the Wechsler Intelligence Scale for Children – 3rd ed., the Wechsler Adult Intelligence Scale – 3rd ed., the Wechsler Individual Achievement Test – end ed., and the Woodcock Johnson III Tests of Achievement [8].

Relevance to Childhood Development

According to the Technical Manual, "the SB5 was designed to measure developmental growth and life-span change" [8], (p. 103). The SB5 is appropriate for assessing the cognitive abilities of children at a variety of ages and developmental levels. Because it has been normed on children as young as 24 months, it is particularly useful for the early identification of developmental issues and other special needs. Indeed, the norming process for the SB5 included the following clinical and exceptional groups: intellectual giftedness, mental retardation, developmental delay, autism, learning disabilities, Attention Deficit Hyperactivity Disorder, severe emotional disturbances, speech/language disorders, and orthopedic or motor delays. The Technical Manual presents tables of scores for each group in an attempt to discern common profiles that, along with other corroborating sources of information, might aid in the identification of individuals with special needs. It was noted, for example, that children diagnosed with Attention Deficit Hyperactivity Disorder obtained significantly lower scores on the Working Memory Factor Index than other factor index scores.

Beyond simply identifying special needs, the test authors have provided recommendations for linking cognitive test results to strategies for teachers and parents for improving areas of weakness. These guidelines are clustered into five areas corresponding with the five Factor Indexes, and lead to recommendations for students who score one standard deviation below national norms on a factor index, or display a significant weakness within their own profile [12].

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Stanford-Binet Intelligence Scales, Fifth Edition

►Stanford-Binet Intelligence Scales

Stanines

►Norm-Referenced Scores
►Standard Scores

Startle Reflex

►Moro Reflex

Startle Response

►Moro Reflex

Starving

►Anorexia Nervosa

Status Scores

►Norm-Referenced Scores

Sten Score

►Standard Scores

Stepfamilies

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Synonyms

Blended families; Remarried families; Stepparent households

Definition

Families of two adults in a formal or informal marriage where at least one of the adults has children from a previous relationship.

Description

Stepfamilies are described as families with at least one child living with a biological parent who has remarried or cohabits with a new partner. The other biological parent lives outside of the household and the child may or may not have contact with that parent through full or partial custody. The stepparent is one who has a

relationship, whether marital or not, with the child's biological parent and resides with the child on a full or part time basis. The stepfamily can also consist of stepsiblings, in which the stepparent has children from a previous relationship who reside within the stepfamily on a part time or full time basis. There may also be children created within the stepfamily between the stepparent and biological parent; which is considered a blended family.

Relevance to Childhood Development

Due to the increase of stepfamilies, it is important for stepchildren and stepparents to build positive and healthy relationships; however, if the relationship between the biological parent and stepparent is not intact, stepchildren may be reluctant to begin the process. Studies have suggested that the relationship between couples must be a priority to maintain the health of the family. After a child experiences a divorce with biological parents, the idea that another marriage may not be successful can create a sense of insecurity. Children who are entering a new stepfamily structure can develop feelings of separation.

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Stepparent Households

►Stepfamilies

Stereotype Threat

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Definition

Stereotype threat refers to being at risk of confirming as a personal characteristic an existing stereotype about a social category (gender, racial, or ethnic group, etc.) to which one belongs. Concern about possible confirmation of the stereotype commonly leads to performance decrements in domains related to that stereotype.

Description

Much of the early research on stereotype threat explored the idea that African-American students' intellectual performance might be undermined by stereotype threat, specifically by their concern that their performance might validate existing negative stereotypes about African Americans' intellectual abilities. For example, in the classic study that launched work on this topic, Steele and Aronson [4] demonstrated experimentally that African-American students who believed they were taking a test measuring their verbal reasoning ability performed less well than African-American students taking the same test who were led to believe that the test measured something else not related to racial stereotypes. However, stereotype threat appears to negatively impact the performance of individuals in many social categories when they believe their behavior might fulfill negative stereotypes about the social categories to which they belong. So, for example, Latinos in the U.S., who are also often stereotyped as less academically able than Whites, experience stereotype threat effects similar to those evidenced by African Americans. In addition, women, who are often stereotyped as poor in math compared to men, demonstrate stereotype threat effects when taking tests they believe measure their ability in math. Parallel negative effects have also been found on the performance of elderly individuals doing tasks they believe measure their memory and on the performance of low SES individuals undertaking activities they believe measure their verbal ability. Importantly, individuals belonging to groups that are not negatively stereotyped in specific domains do not generally show performance decrements related to whether or not the activity is described as measuring their abilities in those domains, supporting the contention that concern about the possibility that one's behavior will confirm a stereotype is the cause of the documented performance decrements. So, for example, men do not show performance decrements when an activity is said to test their math ability compared to when it is not. However, men have been shown to do more poorly on an emotion-processing task after being told that men are less good than women at such tasks than when they did not receive such potentially threatening information.

Stereotype threat not only appears to depress test scores in the short term. It can also lead to numerous other negative outcomes likely to undermine performance in the stereotype-relevant domain in the long run, including

the avoidance of challenging work in that domain, the rejection of critical feedback, and long-term lack of interest and engagement in the stereotype-relevant domain [1, 2].

Although the issue of how stereotype threat undermines performance is far from settled, research suggests a number of possibilities. Specifically, stereotype threat may create anxiety, which undermines performance. It can also lower individuals' expectations about their likely future performance and interfere with memory by leading individuals to devote some of their mental resources to processing and suppressing thoughts about being negatively stereotyped.

Numerous factors appear to influence whether stereotype threat is experienced [5]. For example, the likelihood of stereotype threat effects increases with increased task difficulty, increased levels of concern about performance in the domain in question, and increased identification with the stereotyped group. Also, individuals who themselves tend to believe stereotypes about their social category and those who expect to encounter prejudice and are more bothered by it than others are more affected by stereotype threat than are others, although personal belief in the validity of a stereotype is not necessary for stereotype threat effects to occur. There is some evidence that other personality predispositions, such as a high internal locus of control and a low tendency to self-monitor, are also related to increased stereotype threat effects.

Relatively little is dependably known about strategies that reduce or eliminate stereotype threat effects. However, some research suggests that individuals who are induced to believe that the stereotyped capability is malleable rather than being genetically determined are less prone to stereotype threat effects than are others. Also, educating individuals about the existence of stereotype threat and its potential to cause anxiety may be helpful. Importantly, both laboratory and school-based research suggests that leading individuals vulnerable to stereotype threat to self-affirm, i.e., to write about their most valued personal characteristic or about their values, can reduce stereotype threat effects, sometimes to a substantial extent [3]. Other strategies to reduce stereotype threat effects currently being proposed and investigated include emphasizing high standards and one's belief in the individual's potential, activating category memberships that are not linked to negative stereotypes, describing activities in non-threatening ways, and finding ways to make negatively stereotyped social categories less salient than they might otherwise be.

Relevance to Childhood Development

To the extent that negative stereotypes exist about the capabilities of children belonging to different social categories, stereotype threat can undermine children's development by reducing their performance and decreasing their interest in negatively stereotyped domains. Concern about this possibility is given weight by the fact that many children become aware of group stereotypes at a quite young age, certainly during if not before their school years. Furthermore, studies document stereotype threat effects in children as well as in older individuals. Stereotype threat can reasonably be considered one factor contributing to the substantial achievement gap between minority group students and their non-minority group peers, although it is clearly not the only one.

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Stereotypic Behavior

►Autistic Behaviors

Stereotypic Play

►Restrictive Play

Stereotypy

►Autistic Behaviors

Stillbirths

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Synonyms

Fetal death; Intrauterine fetal death; Sudden Antenatal Death Syndrome (SADS)

Definition

A stillbirth is the death of a fetus prior to delivery or during its travel through the birth canal that occurs at 20 or more completed weeks of gestation. If gestational age is unknown, then the death of a fetus weighing 350 or more grams is considered a stillbirth [4].

Description

Stillbirths can be classified into three categories: early preterm, late preterm, and term. Early preterm is typically used for a fetal death occurring between 20 and 27 completed weeks of gestation. Late preterm refers to a fetal death occurring during 28–36 weeks of gestation. Term refers to a fetal at 37 weeks or more [4]. Miscarriage and stillbirth are not synonymous. A miscarriage is the death of the fetus before 20 weeks of gestation, whereas a stillbirth occurs at 20 or more weeks of gestation.

Male fetuses are more likely to be stillborn than female fetuses [6]. In the United States, approximately 26,000 stillbirths occurred in 2002 [5]. The stillbirth rate declined 52% between 1970 (14 per 1,000 births) and 1998 (6.7 per 1000 births) [1]. Although the cause of 25–60% of all fetal deaths cannot be determined, some causes of stillbirth have been identified, and include infection, lethal fetal anomalies, and fetal malnutrition [3]. Infection can lead to stillbirth through different mechanisms, such as placental damage, severe maternal illness, and development of a congenital anomaly in the fetus. The number of stillbirths caused by infection in developed countries, like the United States, ranges from 10 to 25%, but in developing countries, infection is a major contributing factor in stillbirths [4]. Another cause of stillbirth is the fetus being small for its gestational age or not growing at an appropriate rate. Abruption, in which the placenta prematurely separates from the uterine wall, has also been identified as a cause of stillbirth. Intrapartum asphyxia, impaired respiratory gas exchanged during labor, is another cause of stillbirth. The incidence of intrapartum asphyxia has decreased by 95% since the introduction of intrapartum monitoring [2, 3].

Researchers have identified several risk factors for stillbirth. Some of these risk factors are maternal obesity, low educational attainment, smoking, diabetes, hypertension, infection, thrombophilia, systemic lupus erthematousus (SLE), and multiple gestations. Infertility is a risk factor due to the use of advanced reproductive technologies, including in vitro fertilization (IVF) and ovarian stimulation [3]. The age of the mother is also a risk factor for stillbirth. Females who are under 20 or over 35 years old are more likely to have a stillbirth [1]. Another risk factor is race. Socioeconomic factors associated with race in relation to stillbirth include inadequate prenatal care as well as obstetric care early in the pregnancy [3]. However, African-American women are twice as likely to experience a stillbirth as their Caucasian counterparts even when evaluating only women who received adequate prenatal care [7]. There is also an interaction between race and maternal age. When over 35 years of age, an African American woman's risk of having a stillbirth is four to five times higher than the national average [5].

Stillbirth continues to be an important public health concern. Developing cost-effective prevention strategies is difficult due to limited information. Accurate reporting of stillbirths, including a proper investigation of the cause, can contribute to the development of both prevention and medical management strategies.

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Stilnoct

▶Ambien (Zolpidem)

Stilnox

►Ambien (Zolpidem)

Stimulant Medications

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Synonyms

Adderall; ADHD medication; Amphetamine salts; Concerta; Dexadrine; Dexamphetamine; Methylphenidate; Ritalin

Definition

Stimulant medications are psychoactive drugs that act on the central nervous system by inhibiting the reuptake of specific neurotransmitters including dopamine and norepinephrine, and consequently may elicit alertness, arousal, and in some cases euphoric feelings. Moreover, these medications may help attenuate symptoms of mild depression and narcolepsy, but are largely used to treat symptoms of Attention Deficit/Hyperactivity Disorder (ADHD). Popular stimulants in clinical use are largely prepared from methylphenidate, dextromethylphenidate, dextroamphetamine, or mixed amphetamine salts [3].

Description

Historical Context and the Modern Use of Stimulant Medications

The history of stimulant medication developed from the ancient use of stimulants, for largely recreational uses, by many cultures in different parts of the world. Stimulant use has been documented in multiple cultures across different continents. For instance, for the past 800 years people in East Africa and Lower Arabian Peninsula have chewed a stimulant leaf called Khat. Also, the early use of tea in ancient Chinese culture, the early tobacco use by Native Americans and how such stimulants are widely popular today around the world illustrates the pervasiveness of these stimulants. Additionally, the modern day proliferation of associated stimulants include Coca leaves and white powder Cocaine that began to be used in the early parts of the twentieth century for recreational as well as medicinal purposes [1].

Such historical recreational uses lead to the first synthesized stimulant, namely amphetamine in 1920. Amphetamine was produced for its effect as a mood-elevating drug and about the same time cocaine was medically prescribed for its stimulating effects [4]. The clinical use of stimulants for behavioral disturbances in children and adolescents first began in 1937 at the Emma Pendleton Bradley Home for Children in Rhode Island when Charles Bradley serendipitously discovered the positive effects of amphetamine on children's hyperactivity [6].

Another important development was the approval of methylphenidate for treatment of lethargy, mild depression, and narcolepsy by the Food and Drug Administration (FDA) in 1955. In the 1960s, methylphenidate acquired the trade name *Ritalin*, thus setting precedence of the popularity of stimulant medications [4].

In 1962, Bernard Weiss and Victor Laties extensively studied the effects of amphetamine (including methamphetamine). Before their detailed study there was "love/hate" affair with stimulant medications. The findings of Weiss and Laties portrayed amphetamines as "wonder drugs" that could greatly improve human cognitive abilities, as well as physical performance, but skepticism and worry about possible side effects still endured [4].

In the 1970s, there was increase in uproar about the possible negative consequences of giving Ritalin and other methylphenidate-based drugs to children. By the 1980s, with a new mental illness named to describe inattention in a small number of children as attention deficit disorder (ADD), the relationship between ADD and Ritalin and related drugs seemed clear cut and appropriate [4].

What suspicion there was in the 1970s was dissipated in the eighties and use and prescription among young children rose dramatically up until the late 1990s. Between 1987 and 1996, the use of stimulants among those younger than 18 increased up to sevenfold [10].

During the 1990s, the number of children and adults diagnosed with ADD rose from about 900,000 to almost 5 million. This figure was arrived at by the amount of medication prescribed for ADD. The sharp rise in ADD diagnosis is directly tied to another statistic: a 700% increase in the amount of Ritalin produced in the United States during the same time period. Furthermore, 77–87% of stimulant prescription from 1991–1997 was methylphenidate but a substantial increase of 7–14 fold in amphetamine prescription between 1996–1999 as observed by Medicaid and in health maintenance organizations [10, 11].

Although stimulant medications were used for several mental illnesses, today's use is largely for ADHD.

There is a plethora of stimulant medication options available. Ritalin was the icon of this class of medication, but today there are many more popular brands that are more flexible than previous stimulant medication amalgamations.

Commonly used stimulant medications for ADHD

Brand name	Generic name	Frequency	Duration of action
Dexedrine	D-Amphetamine	2 or 3 times per day	5 h
Adderall	Mixed amphetamine	2 or 3 times per day	5 h
Dexedrine Spansules	Dextroamphetamine	Once in a.m.	6–9 h
Adderall XR (extended release)	Extended release mixed amphetamine	Once in a.m.	9 h
Ritalin	Methylphenidate	3 times per day	2–4 h
Focalin	Dexmethylphendiate	2 times per day	2–5 h
Ritalin SR (slow release)	Slow release amphetamine	1 or 2 times per day	5 h
Metadate CD	Methylphenidate	Once in a.m.	8 h
Concerta	Methylphenidate	Once in a.m.	12 h

Benefits and Side effects of Stimulant Medications

In general, many studies show a significant improvement in ADHD core symptoms such as impulsiveness, aggressiveness and hyperactivity, with the use of stimulant medication. Placebo responses in children with ADHD are generally low ranging from 2–39% [3]. Furthermore, stimulant medications have been found to improve the quality of social interactions between children with ADHD and their parents, teachers, and peers [3].

The majority of psychiatrists and other mental health professionals recommend the use of stimulant medication intervention only after a great deal of consideration has been given to possible side effects and identifying comorbid issues such as learning disabilities or depression. Moreover, stimulant medications should only play a part in overall psychoeducational treatment plans that may include classroom accommodations, working memory training, parent education, and coaching [3].

Although there is generally a low rate of serious side effects, possible side effects include appetite suppression, sleep disruption, irritability, disruption in liver function, elevated heart pressure, elevated heart rate, moodiness, sad demeanor, abdominal pain, lethargy, weight loss, and headaches.

Relevance to Childhood Development

As has been discussed thus far, stimulant medications are largely used to treat ADHD symptoms. It also has been noted that stimulant medications have a controversial history, and currently there is debate about the administration of these drugs to children. Between 3 and 7% of school aged children are diagnosed as ADHD, and 77% of the initial referrals in schools for ADHD examination come from teachers who may play a significant role in the assessment. Other controversial issues center on whether ADHD is over- or under-diagnosed, and whether there is over- or under-prescription of stimulant medications.

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Stimulants

Synonyms
Analeptics; Psychostimulants; Uppers

Definition
A class of psychoactive drugs that increases mood, feelings of well-being, alertness, and energy

Description
Stimulants are typically prescribed for treatment of attention-deficit/hyperactivity disorder (ADHD), narcolepsy, and short-term obesity. Stimulants have many short-term and long-term effects. The short-term effects are caused by an increase in the amount of norepinephrine and dopamine in the brain by inhibiting reuptake, which increases blood pressure, heart rate, blood glucose, breathing, and constricts blood vessels. The effects can be increased alertness, energy, attention, and euphoria. There are also harmful effects such as cardiovascular problems or seizures. Also, there are harmful long-term effects of continued stimulant use, such as addiction. Stimulant drugs are often abused and when taken in high dosages stimulants can cause paranoia, hostility, high body temperature, and an irregular heartbeat.

Types of Stimulants:

- Caffeine
- Nicotine
- Amphetamines
- Cocaine
- MDMA (Ecstasy)
- Norepinephrine reuptake inhibitor (NRIs) and Norepinephrine-dopamine reuptake inhibitors (NDRIs)
- Modafinil
- Ampakines
- Yohimbine

Relevance to Childhood Development
Stimulants may stunt children's growth. Also, abuse of prescribed stimulant medication has become increasingly common among adolescents and college students. Individuals who are prescribed stimulant medication for ADHD are selling their medication for recreational use. The medication is also being used to increase studying efficiency.

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Stimulus

►Motivation

Stimulus Control

►Antecedent Management of Behavior
►Discrimination Learning

Stimulus Discrimination

►Discrimination Learning

Stimulus Preference Assessment

►Preference Assessments

Stockings of Cambridge

►Tower Tasks

Stories

►Personal Narratives

Storm and Stress Theory

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Definition

Describes the period of adolescence as a time of difficulty and strife [2].

Description

G. Stanley Hall, father of the Child Study Movement, in his text titled *Adolescence* [4] discussed the "Storm and Stress theory" of adolescence. He defined this time as one characterized by behavioral difficulties and emotional storminess [4]. Albert Bandura challenged this claim of storm and stress with his 1964 study on the adolescent experience [1]. His research indicated that the majority of youth did not experience adolescence as a turbulent time [1]. Those who did indicate a stressful adolescent experience also indicated a stressful childhood experience, suggesting that the period of adolescence did not bring about the turbulence [1]. Contemporary research also challenges Hall's theory indicating that fewer than 10% of adolescents report experiencing extreme turmoil [3].

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Stoutness

►Obesity

Strange Situation

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Synonyms

Ainsworth's procedure; Ambivalent attachment

Definition

The Strange situation is a standardized observational procedure involving short separations and reunions between an infant and his caregiver. Each successive phase of the procedure is designed to be increasingly stressful to the infant to induce attachment behaviors. The infant's behavior at departures and reunions are coded to assess the toddler's attachment style.

Description

The Strange situation was developed by Mary Ainsworth and her colleagues to assess the attachment between a mother and her infant. The procedure provides empirical support for attachment theory that she and her colleague John Bowlby developed (See Chapter Attachment Theory herein.). The structure of the observational technique is based upon Bowlby's concept of the protective function of attachments. When an infant is distressed, he turns to his attachment figure for comfort and to ensure his wellbeing. In addition, the structured technique is premised on Ainsworth's notion that infants use their mothers as a *secure base* from which they play and explore their environment. The physical arrangement of the laboratory facility is designed to resemble the sort of situations that a mother and her child encounter in their home, but with added stress so as to activate attachment behaviors.

Ainsworth and her colleagues developed a highly specified protocol for the Strange Situation. The procedure involves a sequence of eight episodes in which 12–18 month old infants are observed as they experience stress induced by separations from their mothers. The infant's responses to his mother at reunion is observed and used to classify the child into one of four attachment styles.

More specifically, in the first brief episode, the mother and infant are lead into the room by a stranger who asks the adult to sit quietly and place her child on the floor near some toys. In the next episode, the stranger leaves the room while the mother quietly reads a book. The mother has been told not to initiate any engagement with the child, but can respond appropriately if the infant initiates contact. Each successive episode is increasingly stressful to

the infant as he is separated from his primary attachment figure and is made anxious by the presence of a stranger.

Episode	Persons present	Duration	Action
1	Mother, infant, observer	30 s	Observer introduces mother and infant to room and gives instructions. Observer leaves.
2	Mother and infant	3 min	Mother sits in chair and reads while baby explores. Mother responds to infant but does not initiate.
3	Stranger, mother and infant	3 min	Stranger enters, silent (1 min.), talks to mother (1 min.), and approaches infant (1 min.).
4	Stranger and infant	3 min or less	First separation. Mother leaves room. Stranger comforts infant if needed, otherwise sits in chair.
5	Mother and infant	3 min or more	Stranger leaves. First reunion. Mother returns, greets and/or comforts infant, sits in chair and reads.
6	Infant alone	3 min or less	Second separation. Mother departs, leaving infant alone.
7	Stranger and infant	3 min or less	Continued separation from mother. Stranger enters, comforts infant if needed, otherwise sits in chair
8	Mother and infant	3 min	Second reunion. Mother returns. Stranger leaves.

The procedure is video recorded and scored by highly trained observers. These observers tabulate four 7-point scales that assess *proximity seeking, contact maintaining, avoidance of proximity and contact,* and *resistance to contact and comforting.* Although all of the infant's behaviors are closely noted, the observers pay special attention to the nature of the infant's reunion with his mother following separations.

Ainsworth and her colleagues grouped infants whose behaviors were alike in as many respects as possible. This analysis yielded three main groups of infants, designated as secure, avoidant and ambivalent, and subtypes of each of these styles. Subsequently, other researchers identified a fourth general pattern. Ainsworth hypothesized that differences in attachment were related to variations in the sensitivity and appropriateness of the mother's responses to her infant. The names assigned to the different styles refer to the infant's perception of his mother's response to him if he is in need of comfort or protection, and the manner in which he uses his caregiver to meet those needs.

Ainsworth identified a *secure* baby as one who protested when his mother left the room, greeted her pleasantly upon her return, and was able to resume play. When situated in the room with the mother close by, the infant would use her as a secure base from which he would explore the toys and other objects in the room. In contrast, an infant with an *avoidant attachment style* rarely cried when the mother departed from the laboratory room, and remained aloof on her return. He generally did not show his need for connection, although physiological studies showed that he has a physically measurable stress reaction. Thus, he does not express his attachment need to avoid risking rejection. Finally, an *ambivalent (or resistant)* infant is anxious before the mother leaves the room, and may become highly upset when she departs. When the mother returns, the infant engages with her in an ambivalent fashion: he seeks contact while resisting her by squirming away or kicking his mother. He has difficulty using his mother to obtain comfort and subsequently return to exploration. Later research revealed the *disorganized* attachment pattern. An infant who reflects this attachment style displays inconsistent or contradictory behaviors. For instance, the infant may happily approach the mother but turn away or shriek when she tries to pick him up. At other times the infant may evince extreme distress yet remain frozen and not seek contact with his mother. Those who displayed a disorganized attachment were found to have been abused or subjected to distressing experiences early on.

Relevance to Childhood Development

The strange situation is a powerful research tool that has been used in thousands of empirical studies to explore the influence of infant-caregiver attachment on child development. Longitudinal studies on attachment have shown its importance in personality growth and adjustment.

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Stranger Anxiety

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Synonyms

Fear of strangers; Stranger fear; Stranger wariness

Definition

An infant's anxiety response to someone other than the caregiver.

Description

Stranger anxiety is discomfort at the approach of an unfamiliar person. Infants differ considerably in both the way in which they demonstrate signs of discomfort and in the intensity of distress they experience once confronted with people that are unfamiliar. The manner in which an infant responds to a stranger has been found to be influenced by a variety of factors, namely, the infant's temperament and the security of the mother–infant relationship, aspects of the stranger such as gender and behavior toward the infant, and aspects of the situation, including the proximity and availability of an attachment figure or the infant's current mood [1–3]. Thus, infants may cry, cling and hide their faces, or merely become unresponsive and guarded [1].

Because researchers diverge in their views regarding behaviors that constitute evidence of stranger anxiety, the relevant literature does not denote a precise time period in which the phenomenon occurs. The majority of researchers agree, however, that by the time they are one year old most infants respond with some level of stranger anxiety [1, 4, 5].

The behavioral reactions characteristic of stranger anxiety have been viewed by attachment theorists as indicators of the infant's developing ability to discriminate between the attachment figure and other adults [6]. According to this explanation, labeled "the incongruity hypothesis" by Hebb in 1966 [2, 3], fear may result from discrepancies between the stranger's demeanor and that of the familiar caregiver. Because the emergence of the unexpected is incongruous and incompatible with infants' expectations, it produces anxiety and fear which is then manifested in avoidant behaviors. The emergence of stranger anxiety is thus viewed as a milestone of cognitive development: a behavioral demonstration of the infant's acquisition of the ability to represent persons mentally and to make a distinction among various persons in its environment, an important skill achieved in Piaget's fourth stage of sensorimotor development.

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Stranger Fear

▶Stranger Anxiety

Stranger Wariness

▶Stranger Anxiety

Strangulation

▶Asphyxia

Strategic Thinking

▶Self-Evaluation in Academic Settings

Strategist

►Family Therapist

Strattera (Atomoxetine)

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Synonyms

Atomoxetine

Definition

Strattera is a selective norepinephrine reuptake inhibitor (SNRI) commonly prescribed for treatment of Attention Deficit/Hyperactivity Disorder (ADHD).

Description

Strattera is manufactured by Eli Lilly and Company. It is administered as a capsule, which is taken whole. The medication is intended to reduce inattentiveness, motor hyperactivity, and impulsivity. Although effects may be observed as early as the first dose, signs of improvement may take 6–8 weeks to appear. Furthermore, improvement in symptoms may be more pronounced in female patients, as well as with patients who exhibit more severe symptoms prior to treatment or who exhibit predominantly inattentive type rather than hyperactive-impulsive type. Possible side effects for children and adolescents include digestive difficulties (i.e., upset stomach, reduce appetite, nausea), dizziness, drowsiness or fatigue, and mood swings. Digestive difficulties and drowsiness are reported most frequently. Adverse side effects are seen more commonly in young patients and patients who exhibit a high level of hyperactivity or impulsivity prior to treatment, while diagnosis of predominantly inattentive type has been linked with reduced frequency of reports of adverse side effects [2–4].

Strattera should not be taken by individuals who are sensitive to atomoxetine, who are taking a monoamine oxidase inhibitor (MAOI), or who have narrow angle glaucoma. Use in conjunction with Albuterol may increase heart rate and blood pressure. Due to the potential for increases in heart rate and blood pressure, caution is recommended in use of Strattera for patients with heart problems. Individuals with liver impairment may require a reduced dosage, typically being prescribed a 50% dosage for moderate liver damage and a 25% dosage for severe liver damage [3, 4].

Although Strattera has been approved by the Food and Drug Administration for treatment of ADHD, it may also be prescribed for treatment of depression. As with many antidepressants, Strattera carries a warning that use with children and adolescents may increase the risk of suicidal ideation. Patients should be monitored closely, particularly early in initial treatment with Strattera [3]. A meta-analysis conducted by Bangs et al. [1] noted suicide-related events were more common among patients given atomoxetine than individuals given a placebo, although the events occurred rarely. Suicide-related events usually involved increases in suicidal ideation, rather than attempted suicides.

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Streaming (Great Britain)

►Ability Grouping

Street Smarts

►Practical Intelligence

Street Terms: Gas, Gear, Juice, Roids

►Anabolic Steroids

Stress

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Synonyms

Anxiety; Coping; Pressure; Tension

Definition

A condition in which an individual feels mental tension due to overwhelming circumstances – this mental tension can develop into depression once the individual feels hopeless or can be manifest as physical problems.

Description

The stress response occurs when the amount of stress exceeds what is typically tolerable, and tolerance levels tend to vary for each individual. No matter how the arousal is elicited (whether it be from a traumatic event, an exhilarating event, or anything in between) the stress response process remains the same. The autonomic nervous system is responsible for any stress-related processes, and is able to release hormones through two different neurological pathways. Both pathways are utilized, however they serve different functions and are activated by different hormones.

The Fast-Acting Pathway is activated when the hormone epinephrine is released, thereby preparing the body for the "fight or flight" response. During this process, epinephrine has two primary functions: preparing the body for an abrupt surge of activity and stimulating cell metabolism allowing the body to be ready for action. This survival mechanism only occurs when the mind perceives a critical or dangerous situation.

The Slow-Acting Pathway involves the hormone cortisol, a steroid released from the adrenal cortex. Cortisol results in the shutting down of any systems in the body that are not essential at the time of the stressful event. This allows the remaining energy in the body to be redirected in order to deal with the stressful event.

It is suggested that consistent exposure to or concentrated amounts of these stress hormones during prolonged stress and intense traumatic events may cause hippocampal damage. Such damage may increase one's vulnerability to stress-related disorders (Post-Traumatic Stress Disorder, Panic Disorders, Generalized Anxiety Disorder, and Acute Stress Disorder).

Relevance to Childhood Development

Although stress involves a significant biological component, it has an equally profound impact psychologically. Psychological beliefs are formed through the process of conditioning, whether it is through previous personal experiences or by observing the experiences of others. Thus, the events that happen during the developmental stages of children can have large implications on their lives as adults. Regardless of whether or not an event is negative or positive, it will ultimately influence an individual's beliefs, emotions, and reactions to all similar events in the future.

Developmentally, all children will experience stress. Large amounts of stress not only pose the risk of damage to the hippocampus, but the risk of abnormal social development as well. Depending upon the frequency and intensity of the stressor, the previously acquired coping skills, and the level of social support established, a range of outcomes can be possible for a child. The more positive coping skills a child possesses and the larger their social support system, the better they will be able to effectively manage the stressful situation. Children with fewer coping skills and/or smaller social support systems could be at greater risk for Post-Traumatic Stress Disorder, Panic Disorders, Generalized Anxiety Disorder, and Acute Stress Disorder. Theoretically, personality disorders could also be attributed to maladaptive coping strategies that may have been developed in response to growing up in stressful environments (examples would be the notoriously criminalistic behavior of Antisocial Personality Disorder or the manipulative behavior of Borderline Personality Disorder).

Ideally, levels of stress for children should be kept to a minimum as a more nourishing environment has been shown to correlate with better social skills and better overall mental health. The mental wellbeing and social skills of children are important throughout the developmental stages, however the benefits also extend to adulthood in regards to future career opportunities and personal relationships.

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Stress Management

▶Self-Care

Stress Reduction

►Self-Care

Stress-Diathesis Model

►Diathesis-Stress Model

Stressful Life Events

►Life Events

Stress-Vulnerability Model

►Diathesis-Stress Model

Striatum

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Synonyms

Neostriatum or striate nucleus

Definition

The striatum is a collection of subcortical anatomical brain structures named after their striped or striated appearance.

Description

The striatum includes the caudate and putamen, two of the three nuclei that make up the basal ganglia (the caudate, putamen, and globus pallidus). The striatum collects projected input from the sensory cortex and other cortical regions. These three nuclei work together to send their output to the motor areas of the cortex, through the globus pallidus and then the thalamus. The striatum is considered a motor region that has a role in planning and the initiation of voluntary movements, and it controls the proper timing, ordering and movement sequences.

The striatum's activity is disrupted in Parkinson's disease, which has symptoms such as resting tremors, a slow shuffling gait, and difficulty initiating voluntary movement. Huntington's disease also affects the caudate nucleus, and is characterized by puppetlike jerking and grimacing choreic movements.

With the help of neuroimaging techniques, other changes in the structures and chemistry of the striatum have been noticed in adults who used methamphetamines, specifically an enlargement of the striatum, while the effects of in utero exposure to methamphetamines have shown a decrease in the striatal structures.

Other studies have shown association between abnormalities in circuits involving the amygdala and striatum and bipolar disorder, as well as effects on mood regulation. Furthermore, other studies are investigating the links between the striatum and attention-deficit hyperactivity disorder.

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Stroke

►Cerebral Infarction

Stroop Tasks

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Synonyms

Color word task

Definition

The Stroop Test is designed to measure an individual's ability to inhibit automatic verbal responses.

Description

The Stroop Test refers to the phenomenon that if you try to name the color of the ink in which a word is written, the word itself can "interfere" with the process. The Stroop effect was first described by J.R. Stroop in 1935 [4] and is most obvious when the word, and color of the ink that the word is written in, don't match (i.e., they are incongruent). For example, the correct response for the three words below would be red, brown, and blue.

Blue
Green
Brown

However, in this situation it usually takes longer to name the color of the ink because of the need to inhibit the more automatic response of reading the word. On the other hand if the word does match its color (i.e., is congruent), it usually takes a shorter time to respond.

Administration

In the Stoop Test individuals are required to respond to three separate conditions. In the first condition, the participant is presented with a page that has rows of colored patches that they are required to name. In the second condition they are presented with rows of words that they are required to read. The third condition is the traditional "stroop effect" where the participant is presented with a page of words printed in incongruent ink colors. Participants are asked to name the color of the ink that the letters are printed in rather than reading the word. For example, the correct response for the first line of the text in the box below would be, red, brown, blue, and green [3].

Blue	Green	Brown	Red
Green	Brown	Red	Blue
Brown	ed	Blue	Green
Red	Blue	Green	Brown

Some test designers add a fourth condition. In the fourth condition participants are presented with a page with rows of words again printed in incongruent ink colors but in this condition some of the words are in boxes. The participant is required to name the color of the ink for the words that are not in boxes and read the word if the word is inside a box.

Scoring

In each condition individuals are required to name the colors or read the words as quickly as possible. A number of scores can be generated: (a) time taken to complete a condition, (b) number of uncorrected errors, (c) number of corrected errors. Normative data are available for most age groups [3].

Relevance to Childhood Development

The Stoop Test has become a well used measure of inhibitory control. Inhibitory control is an important aspect of development. As a general rule, children have a less developed ability to inhibit automatic responses. For example, a very young child may verbalize an inappropriate response (e.g., "look mommy that lady is fat") whereas a normal adult would be able to inhibit verbalizing "inappropriate" observations because of their more developed inhibitory control skills. For most children inhibitory control develops automatically as they mature. However, for some children this ability does not develop at the normal rate such as for children with Attention Deficit Hyperactivity Disorder [1]. In this situation the Stroop Test is a valuable tool in assessing the level of inhibitory control problems that these children are experiencing.

Because very young children are still developing their reading ability Stroop tasks have been developed that do not require this skill, such as color-object interference tasks where line drawings of well known objects (e.g., ducks, frogs) are used rather than words [2].

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Structural Equation Modeling

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Synonyms

Analysis of covariance structures; Confirmatory factory analysis; Covariance structure analysis; Covariance structure modeling; Path analysis

Definition

Structural equation modeling (SEM) is a flexible and powerful set of statistical techniques which incorporates path analysis and confirmatory factor analysis.

Description

SEM represents an advantage over traditional general linear modeling in that it has flexible assumptions, the ability to test a complete model rather than individual coefficients, the ability to have more than one outcome variable, ease of modeling mediation, and ease of handling missing data.

SEM techniques include confirmatory factory analysis (CFA) and path analysis [1]. CFA is a process by which researchers use observed variables to measure unobserved, latent constructs. Factor loadings are calculated as a measure of the strength of the relationship between an observed variable and its latent factor. Path analysis in SEM tests relationships between observed variables or latent constructs in the form of paths or correlations. Path coefficients are calculated as a measure of the strength of association between a predictor and outcome variable. Models that contain both latent (unobserved) constructs and observed variables embedded in a path model require researchers to first test a measurement model using CFA, followed by testing a structural model using path analysis. However, SEM is an extremely flexible approach to statistical modeling, and although estimation of measurement and structural models are one frequent application of SEM, it is often used in other ways. For example, CFA may be used alone to validate the psychometric properties of a measure. Structural or path models may be used alone in cases when research does not involve latent constructs. SEM may also be applied to longitudinal data through use of latent growth curve modeling and analysis of time series data.

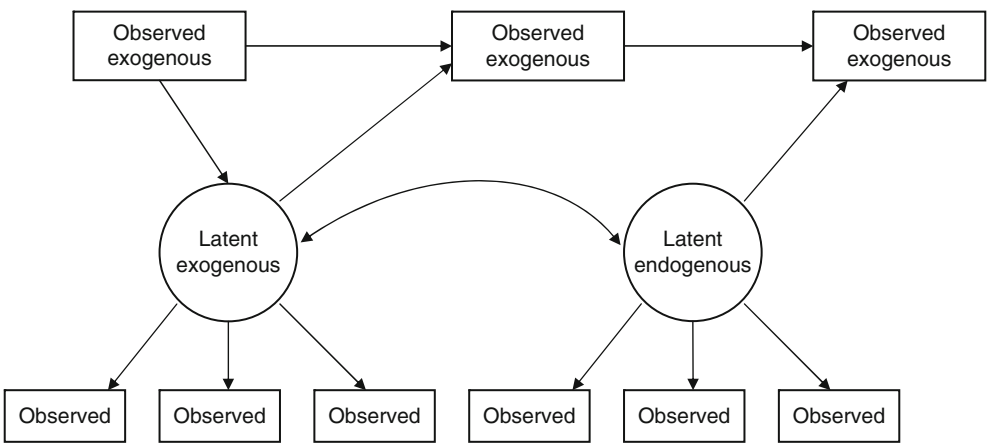
In general, models using SEM are not evaluated using significance levels, as with traditional GLM statistics. They are evaluated through assessment of various fit indices that are generated by the software program used to test the model. The software program may also calculate modification indices, which identify changes to the model meant to improve fit. However, modification indices are typically used sparingly, as SEM is a theory-driven statistical approach. LISREL, AMOS, Mplus, and EQS are popular software packages for SEM.

Interpretation of Path Diagrams in SEM (see Fig. 1)

An observed variable, represented graphically with a box, is one that has been directly measured by researchers. A latent variable, represented graphically by an oval, is one that is not directly measured, but is estimated by the model from observed variables. An exogenous variable is one that is not predicted by another variable in the model, but typically is a predictor of one or more other variables. An endogenous variable is one that is predicted by other variables in the model and may or may not also predict other variables. Each straight line with a single arrow represents a path, or hypothesized direct effect of one variable on another. Each curved line with two arrowheads represents a correlation between two variables.

Relevance to Childhood Development

SEM is a statistical application that is being used throughout research fields, including areas of child development and psychopathology. Recent applications include investigation of child social adjustment, impact of parental



Structural Equation Modeling. Fig. 1 Example path diagram used in structural equation modeling.

alcohol use on child outcomes, the relationship of parenting techniques to childhood aggression, development of parent–child relationships during adolescence, evaluation of family-based intervention for school success, and numerous others. Given the flexibility and utility of SEM, it will likely continue to increase in frequency as a statistical tool among child development researchers.

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Structural Imaging

►Brain Imaging

Structuralist

►Family Therapist

Structured English Immersion

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Definition

An instructional approach designed for students with limited English proficiency todevelop proficiency in English and benefit from academic content instruction in English.

Description

Structured English immersion has as its goal sufficient English language acquisition for students to succeed in mainstream English-only classrooms. Instruction in these programs is in English and teachers use strategies such as visuals, graphic organizers, and gestures to help make the English content comprehensible [1]. Longitudinal research has demonstrated that students in Structured English immersion programs have similar academic skill and English language growth rates in the first few years of elementary school as compared to students in early-exit and late-exit ►transitional bilingual education programs; however students in late-exit transitional bilingual education programs tend to have accelerated academic skill and English language growth throughout the second half of elementary school as compared to students in Structured English immersion or early-exit bilingual education programs [2].

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Struggle with Self Identity

►Identity Crisis

Student Teams Achievement Divisions (STAD)

►Cooperative Learning

Student-Centered Instruction Holistic Learning

►Whole Language Approach

Study Skills

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Synonyms

Study strategies; Study tactics

Definition

Study Skills comprise an integrated repertoire of tactics and strategies, which facilitates acquisition, organization, retention, and application of new information.

Description

Study skills encompass a broad range of tactics and strategies that ultimately allow students to effectively learn, organize, and recall new information. Although children are often expected to develop study skills naturally, research indicates that many students exhibit study skill deficits and require explicit instruction to acquire and appropriately use study skills [5]. Additionally, the degree to which students are able to study effectively is a strong predictor of academic achievement [1].

An important distinction must be drawn between study tactics and study strategies, both of which are often used interchangeably with study skills. Study tactics, or the specific techniques involved in studying, form the building blocks for effective study skill development. Study tactics generally fall into one of three "clusters," each of which is characterized by its approach to learning new information [2]. *Repetition-based* tactics emphasize frequent rehearsal of material to encourage learning. Use of flashcards or spelling lists are common examples of repetition-based tactics, which are well-suited for the acquisition of rote facts or lists that require minimal information processing. *Procedural* tactics focus on developing steps or routines that enhance information processing. Note-taking, outlining, and SQ3R are some of the most common examples of procedural tactics, which are often beneficial for students in middle- to late-elementary school. Procedural skills allow children to practice a reliable method of acquiring and reviewing new information. Finally, *cognitive* tactics are often introduced during late elementary or middle school. Cognitive approaches, such as graphic organizers, question generation, and summarization, facilitate critical thinking and personal connections to new material.

In contrast to study tactics, study strategies refer to skills that are necessary to effectively select, integrate, and apply one or more study tactics in a way that facilitates learning. The development of study strategies typically occurs during middle school or later and is a key factor in meeting the increasing demands of secondary education. Study strategies are commonly referred to as ►metacognitive skills, and can include behaviors such as assessing the demands of a task, selecting and applying appropriate tactics, self-monitoring for comprehension and recall of information, and effectively managing the environment to facilitate learning. Students who struggle academically in high school almost always exhibit deficits with regard to effective study strategies [6].

Study skills, then, refers to an age-appropriate combination of both study tactics and study strategies. An appropriate balance between tactics and strategies varies depending upon the developmental level of the child. During early elementary school, for example, study skills may be considered appropriate if children can independently apply one or two study tactics. By late elementary and early middle school, students are typically expected to demonstrate competent use of multiple study tactics, in addition to a developing ability to select and apply a tactic appropriate for a particular task (i.e., apply a study strategy). Students in high school who demonstrate adequate study skills exhibit an extensive toolbox of study tactics, in addition to strategies that allow them to manage multiple courses and assignments, determine and use one or more tactics appropriate for each studying task, and self-monitor their study habits to ensure adequate comprehension and retention of material.

Relevance to Childhood Development

Study skills have a major impact on children's academic development. Children who struggle academically across a number of subject areas often exhibit significant study skills deficits. In young children, academic difficulty that results from inadequate study skills may be manifested through inattention, challenging behaviors, or low task completion across classroom settings. In middle and high schools, students with study skills deficits often have difficulty with low homework completion, poor test performance, and inappropriate organization and time management skills. Several resources are available for comprehensive assessment and intervention for children who demonstrate such deficits [3, 4].

It may also prove beneficial for parents and teachers to recognize two keys points regarding study skills. First, study skills develop along a continuum, from very basic rehearsal tactics to a complex array of techniques and strategies that are applied flexibly and intentionally to tasks. Helping children become competent at using age-appropriate tactics and strategies can contribute to long-range academic success. Second, study skills can be explicitly taught within an educational context. Incorporating study skills instruction into regular classroom activities allows students to receive modeling, feedback, and guided practice in the use of a variety of specific study tactics. This exposure and experience is likely to help students feel more independent in selecting and using study tactics independently.

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Study Strategies

►Study Skills

Study Tactics

►Study Skills

Stuttering

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Synonyms

Falter; Stammer

Definition

To stutter is to speak with an involuntary disruption or blocking of speech (as by spasmodic repetition or prolongation of vocal sounds).

Description

Stuttering is a speech disorder in which the normal flow of speech is disrupted by frequent repetitions or prolongations of speech sounds, syllables or words, or by individual's inability to start a word. The speech disruptions may be accompanied by rapid eye-blinks, tremors of the lips and/or jaw, or other struggle behaviors of the face or upper body. Certain situations, such as speaking before a group of people or talking on the telephone, tend to make stuttering more severe. Other speaking situations, such as singing or speaking alone, often improves fluency. Diagnosis is usually based on the history of the disorder, including when it was first noticed and under what circumstances, as well as a complete evaluation of speech and language abilities. Stuttering may also be referred to as Stammering, especially in England and by the broader term of "dysfluent speech". Stuttering is different from two additional speech fluency disorders, *cluttering*, characterized by rapid, irregular speech and *spasmodic dysphonia*, a voice disorder. It is estimated that over three million Americans stutter. The precise mechanisms causing stuttering are not known.

Relevance to Childhood Development

Stuttering affects individuals of all ages but occurs most frequently in children who are developing language, typically between the ages of 2 and 6 years. Boys are three times more likely to stutter than girls. Most children, however, outgrow their stuttering, and it is estimated that less than 1% of adults stutter. Complications of stuttering in children may include social problems caused by fear of ridicule, which may make a child avoid speaking entirely.

The most common form of stuttering is thought to be developmental, that is, occurring in children who are in the process of developing speech and language. This relaxed type of stuttering is felt to occur when a child's speech and language abilities are unable to meet his or her verbal demands; that is, stuttering happens when the child searches for the correct word. Another form of stuttering is neurogenic, where the brain is unable to coordinate adequately the different components of the speech mechanisms. Neurogenic stuttering may also occur following a stroke or any other type of brain injury. Other forms of stuttering are classified as psychogenic, or originating in the mind or as a product of mental activity of the brain such as thought or reasoning. Psychogenic stuttering occasionally occurs in individuals who have some type of mental illness or have experienced severe mental stress or anguish.

There are a variety of treatments available for stuttering. Any of the methods may improve stuttering to some degree, but there is, at present, no absolute cure for stuttering. Developmental stuttering is often treated by educating parents about restructuring the child's speaking environment to reduce episodes of stuttering. Parents are urged to provide a relaxed home atmosphere with lots of opportunities to speak, and refrain from criticizing or reacting negatively to the child's dysfluencies.

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Subcortical Aphasia

►Childhood Aphasia

Subjective Assessment

►Social Validity

Substance Abuse

►Chemical Dependency

Substance Dependence

►Chemical Dependency

Substantia Nigra

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Definition

The substantia nigra is defined as a collection of neurons and nuclei that are part of the dopaminergic system, which are located in the midbrain or mesencephalon. The name of the structure is based on the dark color of the cells due to their high concentration of neuromelanin.

Description

The substantia nigra is involved in the function of basal ganglia through the dopaminergic nigro-striatal system, which connects the globus pallidus and the thalamus. This connection is believed to influence motor behavior.

There are two different parts of the substantia nigra, the *substantia nigra pars compacta* and the *substantia nigra pars reticulata. Substantia nigra pars compacta* is the upper, more dorsal part, in which the dopaminergic cells are distributed similar to a band stretching from the medial to the lateral area. *Substantia nigra pars reticulata* is located ventrally or below the *pars compacta*, and it consists of the dendrites of the dopaminergic neurons.

The degeneration of the substantia nigra and the deterioration of the dopaminergic pathways are the causes of Parkinson's disease, and the substantia nigra also is believed to play a role in learning.

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Suckling

►Breastfeeding

Sudden Antenatal Death Syndrome (SADS)

►Stillbirths

Suffix

►Morpheme

Suffocation

►Asphyxia

Suicidal Cognitions

►Suicide Ideation

Suicidal Thoughts

►Suicide Ideation

Suicide

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Synonyms

Self-annihilation; Self-destruction

Definition

Suicide refers to a fatal, self-inflicted act with the inferred or explicit intent to die.

Description

Suicide is the final and most serious form of suicidal behavior on a continuum that also includes suicide ideation and suicide attempts. Suicide continues to be a significant national problem; although it is the 11th leading cause of death among Americans overall, suicide is the third-leading cause of death among children and adolescents, trailing only accidents and homicide. The probability of suicide increases in both males and females as children grow older, with adolescents ages 15–19 being at higher risk than youth ages 10–14. Suicide does occur in children under the age of 10, although it is very rare.

In terms of race and ethnicity, in the U.S. Caucasian youth are at highest risk for suicide, followed by African American and Latino youth. Proportionally, however, the highest rates of youth suicide are among Native American youth. Possible reasons for this include a proportionally higher use of alcohol and firearms and a frequent lack of social integration in this group. Gender exerts a greater influence on youth suicide than does race and ethnicity. Although females report more suicide ideation than males and attempt suicide two to three times the rate of males, males complete suicide at a rate of five times that of females. Reasons for the higher youth suicide rate of males include the higher rates of significant risk factors among males as well as their being less likely than females to engage in a number of protective behaviors, such as seeking help. In terms of geography, youth suicide rates have consistently been highest in the Western states and Alaska and lowest in the Northeastern states. It has been frequently suggested that geographical differences in youth suicide rates may largely be attributed to differences in population density across various regions. Consistent with this hypothesis is the finding that suicide rates are typically higher in rural areas than in urban areas.

The majority of youth suicides occur in the afternoon or evening, and most often in the home, where the primary means for suicide (e.g., firearms) are typically available. The use of firearms is the most frequently used method of suicide completion among males ages 10–19. Although historically firearms were the most frequently used method of suicide completion among females in this age group as well, more recently females have been more likely to use hanging/suffocation rather than firearms. Although a number of studies have examined temporal variations in suicide completion, none to date have been specific to youth suicide. Among adults, research indicates that suicides occur most often between March and September, with the fewest recorded suicides occurring in December. Suicides appear to occur most often on Mondays and least often on weekends.

Although numerous risk factors for youth suicide have been identified, the most reliable and robust risk factor is the presence of psychopathology, particularly depression and related mood disorders. In addition to psychopathology, the other prominent risk factor for suicide is previous suicidal behavior, particularly previous suicide attempts. As opposed to risk factors, which are variables that may predispose an individual to suicidal behavior, warning signs are more dynamic and proximal factors that suggest the increased probability of a suicidal crisis. Some prominent warning signs for suicide may include hopelessness, increasing alcohol or drug use, acting recklessly or engaging in risky activities, feeling trapped, experiencing anxiety and/or agitation, withdrawing from family and friends, being unable to sleep or sleeping excessively, giving away prized possessions, and/or perceiving no reason for living or no sense of purpose in life.

There are many myths associated with youth suicide, including the erroneous beliefs that it is caused primarily by family and social stress rather than mental health problems, that individuals who threaten suicide are only doing

so to gain attention, and that once an individual decides to commit suicide there is little or nothing that can be done to prevent it. Perhaps the most significant and dangerous myth, however, is that asking questions or talking about suicide with children and adolescents will increase the probability of youth suicidal behavior. There is no evidence to support this belief, and research suggests that at risk youth who are able to openly discuss suicide with a trusted adult can lead to beneficial outcomes for them as well as their peers who may also be at risk. The direct questioning of youth suspected of being at risk for suicide is also an essential component of effective suicide risk assessment and prevention.

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Suicide Contagion

►Copycat Suicides

Suicide Epidemic

►Copycat Suicides

Suicide Ideation

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Synonyms

Suicidal cognitions; Suicidal thoughts

Definition

Suicide ideation involves thoughts/cognitions about killing oneself as well as specific thoughts related to suicide.

Description

Suicide ideation may take a variety of forms, ranging from general thoughts about suicide, to wishes of being dead or never being born, to more serious thoughts of suicide involving specific plans to kill oneself, such as how, where, and when this might be accomplished. Suicide ideation is rare in children but highly prevalent among adolescents, with research suggesting that approximately 1 out of 6 high school students will seriously contemplate suicide in a given year. There are significant gender differences in regard to suicide ideation. Specifically, adolescent females report engaging in serious suicide ideation more often than males, although males have a much higher suicide completion rate.

Suicide ideation occurs at the beginning of the suicidal behavior continuum that also includes suicide attempts and suicide completion. The behaviors along this continuum vary and are not mutually exclusive, nor do all suicidal youth advance sequentially through them. Although suicide ideation typically is a necessary precursor to more serious forms of suicidal behavior (i.e., suicide attempts; completed suicide), most children and adolescents who engage in suicide ideation neither attempt nor complete suicide.

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Sumner, Francis Cecil

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Life Dates

1895–1954

Introduction

Francis C. Sumner was the first African American awarded the Ph.D. in psychology from a U.S. institution in 1920. Graduating from Clark University under the tutelage of G. Stanely Hall, Sumner's dissertation was titled: Psychoanalysis of Freud and Adler.

Educational Information

Sumner received his elementary education through several school systems in Virginia, New Jersey, and the District of Columbia. Due to a lack of secondary education opportunities he did not graduate from high school. Even without a high school diploma, he performed well enough to enroll at Lincoln University in Pennsylvania during the 1911 school year at age 15. In 1915 he graduated magna cum laude with special honors in English, Modern Languages, Greek, Latin, and Philosophy. The prominent child psychologist G. Stanley Hall was the president of Clark University and he allowed Sumner to be admitted in 1915. In 1916 he was awarded a second B.A. in English from Clark University in Worcester Massachusetts. Upon completion of his Ph.D. in 1920 Sumner accepted a position as chair of the philosophy and psychology departments at West Virginia Collegiate Institute now known as West Virginia State University.

Accomplishments

Dr. Sumner established the first psychology department at Howard University in Washington D.C. He believed that in order to develop a strong program to train Black psychologists, psychology departments needed to be autonomous units. With the help of then Howard University's president, Mordecai Johnson, a separate department of psychology was permanently established and he was appointed full professor and head of the department in 1930.

Contributions

Because of his diligence while confronting the social and educational barriers of his time, Dr. Sumner is known as the pioneer for African American psychologists. Under Sumner's tutelage many of his students went on to become prominent psychologists. One such student was Kenneth Bancroft Clark whose psychological research on prejudice, discrimination and segregation in the developing child was used in the 1954 Supreme Court case Brown v. Board of Education. In addition, Sumner was an official abstractor for both the Journal of Social Psychology and the Psychological Bulletin, where he translated more than three thousand articles from German, French, and Spanish.

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Superego

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Synonyms

Uber-Ich (German)

Definition

According to Freud's structural model of the mind, as expressed in *The Ego and the Id* (1923), the superego is the part of the mind that is comprised of internalized moral standards and ideals learned both from parents and society–our sense of right and wrong. Freud believed the superego was the last component of the mind to develop, and begins to emerge at latency when the child "identifies" with the same-sex parent, thereby resolving the Oedipal Complex.

Description and Relevance to Childhood Development

The germination for the idea of the superego first appeared in Freud's writings, via his concept of the "ego-ideal" as elaborated in *On Narcissism: An Introduction* [2]. In this original conception of the ego ideal, the child projects an ideal image of himself or herself but is forced to abandon this image due to parental criticism. While this paper does not name the superego specifically, it does discuss a mechanism whereby the ego is watched and measured against the ego ideal. Seven years later, Freud [3] discusses how the ego-ideal can be shaped by others whom the person admires, while not necessarily specifying the role parental and authority figures play in superego development.

Building on his earlier ideas, Freud operationally defined the superego in *The Ego and the Id* (1923). The superego is composed of two parts: the *conscience* and the *ego ideal*. In a general sense, the conscience is a punitive, negative agent, and the ego ideal functions as an agent of reward.

The *conscience* is made up of prohibitions, and includes information about things that are viewed as bad by parents and society. These behaviors are often forbidden and lead to bad consequences, punishments, or feelings of guilt and remorse. Just as the parent has punished the child for his/her transgressions, so does the conscience punish the person with guilt, "accidentally" cutting one's finger, or intentionally self-destructive behavior [10].

Hall [6], among others, points out that an overdeveloped conscience can lead to the superego to adapt prohibitions even more severe than parental or societal prohibitions, leading to a "straight-jacket existence" (p. 46) or the development of thought patterns based on morals and ideals rather than reality.

The *ego ideal* includes the rules and standards for good behaviors. These behaviors include those approved of by parental and other authority figures. Obeying these rules leads to feelings of pride, value, and accomplishment. Just as the child has been rewarded for certain behavior by her parents (or parental figures), the child is rewarded by the ego ideal with increased self-esteem and pride. Freud [4] thought that the ego ideal was tied into childhood narcissism, which in adulthood can transform into the perfection of the ego ideal.

The superego acts in opposition to the id and the ego, and does not discriminate between what is real and what is imagined. It rewards, punishes, and makes demands, and its goal is to eliminate the pleasure principle and the reality principle. The superego does not only keep watch over behavior, it oversees cognition, namely those of the ego, as thinking is just as bad as doing. Freud, in his later writings, described the superego as representing the "cultural past" [5, p. 206] and felt that the superego helped maintain social order by restraining sexual and aggressive behavior that, if unrestrained, could de-stabilize society.

Other psychoanalytic theorists have examined Freud's conception and definition of superego. Klein [8] (Melanie Klein (1882–1960)), though agreeing with Freud's conception of the superego, disagreed with its formation at latency. She instead proposed that the superego is formed early in life by the first object-introject, namely the mother's breast. Similarly, she also disagreed with Freud's idea that boys developed a stronger superego than girls because they have a penis and girls do not. She posited that girls are better adjusted psychosocially than boys, because boys have to separate from their mother, while girls are extensions of their mother and thus do not need to separate. Erikson [1] acknowledges the need for superego development for socially acceptable behavior, but views its development as a loss because it often blunts imagination and initiative. Lacan [9] proposes that superego "has nothing to do with moral conscience as far as its most obligatory demands are concerned" (p. 310). He felt that superego is not the ethical agency of the mind, but in fact, is the anti-ethical agency. He felt that the betrayal of desire is what leads to guilt, and that the ego ideal compels us to give up on our desires and live according to the demands of the social order.

Psychoanalytic theorists, most prominently the object-relations psychologist Otto Kernberg, have traced character pathology to issues with superego development. In his book, *Object Relations Theory and Clinical Psychoanalysis* [7], he theorized that since older children and most adults show some form of ego and superego conflicts, most people show some degree of "splitting" of their psyches that stems from infancy. Kernberg and many others have argued that when the developmental history of splitting is examined, it is found to begin shortly after birth and eventually develops into adult forms of "ego" versus "superego." An excessive form of splitting is traced to Borderline Personality Disorder, while Narcissistic Personality Disorder and Anti-Social Personality Disorder have etiology in deterioration and/or destruction of the superego.

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Supportive Care

▶Palliative Care

Suppression

►Inhibition

Survival of the Fittest

►Darwin's Theory of Natural Selection

Susceptibility to Interference

►Distractibility

Sustained Attention

►Attention Span

Swallowing Reflex

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Synonyms

Involuntary swallow; Pharyngeal response mechanism; Pharyngeal swallow response; Swallowing response

Definition

Automatic physiological mechanism that results in breath hold secondary to vocal fold adduction, laryngeal and hyoid anterior and superior movement, velopharyngeal closure, and epiglottal posterior movement to cover the trachea during bolus movement through the hypopharynx and the upper esophageal sphincter.

Description

The swallowing reflex is one phase of the swallow which is under reflexive or involuntary control. This stage of the swallow begins after food which has been masticated has been gathered together in the mouth and formed into a bolus which is passed from the posterior tongue through the faucial arches. As the bolus begins its descent from the posterior tongue through the hypopharynx to the upper esophageal sphincter, the swallow becomes reflexive. Breathing stops at this time as the epiglottis covers the airway entrance, the vocal folds adduct or close to further protect the upper airway, the larynx moves upward and forward, the velopharyngeal port closes to prevent nasal regurgitation, and the upper esophageal sphincter opens [4]. This process occurs in less than 2 sec [3] and is essential to protection of the airway during feeding, drinking, and when managing saliva. When impaired, a condition referred to as dysphagia, food, drink, and/or saliva can penetrate the upper airway to the level of the vocal folds, or become aspirated below the vocal folds. Aspiration pneumonia is a potentially deadly condition manifested by a sudden spike in core body temperature and acute onset of upper respiratory infection.

Both normal and pathological conditions can affect the swallowing reflex. Normal aging results in psychomotor slowing, muscle atrophy, and reduced peristaltic muscle action. Slowing and degradation of the swallowing reflex is no exception. An aging swallow reflex commonly results in increased incidence of laryngeal penetration during the swallow in normally aging individuals [1]. In addition to the observable peripheral effects of aging upon the swallow reflex, central nervous system changes have been identified. Older individuals have been found to activate more cortical sites during swallow than do their younger counterparts, possibly indicating a change in the neurophysiology of the swallowing reflex over time [2].

A primitive swallowing reflex has been observed in those with neurological immaturity and/or neuropathology. This reflexive response is normally observed in infants only. The primitive swallowing reflex can be elicited by a puff of air to the maxillary-mandibular and maxillary-ophthalmic regions of the face and there is speculation that the primitive reflex could be exploited to improve swallow safety in those with neuropathology and/or immature nervous systems [5]. Other static and progressive neuropathologies which commonly affect swallow include cerebrovascular accident (CVA) or stroke, amyotrophic lateral sclerosis (commonly referred to as Lou Gehrig's disease), Parkinson disease, cerebral palsy, and traumatic brain injury.

Anatomical defects can result in an impaired swallow reflex as well. Supraglottal laryngectomy may result in the surgical removal of the epiglottis, the ventricular vocal folds, and/or other tissue above the level of the true vocal folds. Partial laryngectomy may result in the loss of a portion or an entire true vocal fold. The loss of these airway protective mechanisms puts an individual at risk for aspiration. In addition, irradiation of the pharynx for

treatment of tumors commonly results in an impaired swallow reflex and dysphagia due to reduced peristaltic movement of irradiated muscles.

Dysphagia is most commonly diagnosed and treated by a speech-language pathologist. The swallowing reflex is commonly screened informally by a speech pathologist. When the reflex appears delayed, weak, or otherwise disordered, the speech pathologist will often recommend that a modified barium swallow study (MBSS) be performed in fluoroscopy in conjunction with a radiologist. The speech pathologist and the radiologist can determine which consistencies of food and drink are best to maintain a safe swallow, as well as any postural or behavioral modifications necessary to improve swallow safety. In addition, the speech pathologist may target elicitation of the swallowing reflex through various sensory methods in an attempt to reduce or eradicate dysphagia. Persons who cannot or do not respond to postural, behavioral, and/or food consistency modifications and who remain at risk for aspiration may demonstrate the need for alternative feeding methods including temporary placement of a nasogastric feeding tube, or placement of a more permanent gastronomy tube.

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Swallowing Response

►Swallowing Reflex

Switch-Hitter

►Bisexual

Swyer Syndrome

Synonyms

XY gonadal dysgenesis

Definition

A type of hypogonadism in which there is a uterus and fallopian tubes, but no functional gonads present to induce puberty in an individual with XY chromosomes (male chromosomes) but an external female appearance. These individuals instead have clumps of tissue called streak gonads, which may become cancerous later in life and need to be removed.

Description

Sywer syndrome is a fairly rare syndrome, occurring in approximately 1 in 30,000 people. It is most commonly caused by a SRY mutation that prevents the production of the sex-determining region on the Y protein (usually male) or produces a nonfunctioning protein. Since, the male determining protein is faulty individuals with Sywer syndrome will by default develop female sex organs. This syndrome is typically not genetically linked but can be passed on by a father who has a mosaic SRY mutation (in some cells but not others) or in rare cases has the SRY mutation but is not affected by it. In cases where the SRY mutation is inherited, the syndrome is said to be a Y-linked inheritance syndrome. The syndrome can also be caused by a NR5A1 mutation; similar to a SRY mutation, a NR5A1 mutation can be spontaneous or inherited. Another mutation that can cause Swyer syndrome is the DHH gene mutation, which is inherited in an autosomal recessive pattern (both parents are carriers). A mutation in the NR0B1 gene can also cause Swyer syndrome and is usually a X-linked inheritance.

Individuals with Swyer syndrome are usually raised as females and typically identify with the female gender. Hormone replacement therapy is a viable option, and can be started during adolescences to induce menstruation cycles and develop secondary sex organs. Also, hormone replacement therapy helps to prevent reduced bone density, which can be an issue for individuals with Sywer syndrome. However, due to lack of gonads these individuals cannot produce eggs, but may become pregnant through a donated egg or in vitro fertilization.

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Syllable Structure

►Morphology

Syllogism

►Deductive Reasoning

Symbolic Play

►Dramatic Play
►Pretend Play

Symbolic Thought

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Synonyms

Internal symbols; Pretending actions; Thinking symbolically

Definition

For young children to engage in making up or imagination by acting as if things are real when they are not real. Symbolic thinking is a cognitive stage of development in young preschool age children.

Description

Symbolic thought is common for children to engage in through the process of pretend or make believe. Young children express symbolic thoughts by reenacting actions of parents or care givers by using various objects that represent what they pretend them to be. An example is children playing in the dirt to make food. The children imagine themselves to be other people or animals also using drawing, writing, singing and talking [1].

Relevance to Childhood Development

Caregivers and parents can help in their children's development by understanding mirroring plays an important role in the development of symbolic thought. Language develops by symbolic functions. The child is able to imagine behaviors of adults observed in the past and to reconstruct the behaviors by make-believe. Having available dress-up clothing, paper, crayons, empty boxes and containers help in this development. Various cultures have items representing different foods, dress, and tools that caregivers can include when caring for children [2].

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Sympathetic Activation

►Anxiety

Sympathy

►Empathy

Symptoms Checklists

►Revised Children's Manifest Anxiety Scale: Second Edition

Synaptic Pruning

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Definition

Synaptic pruning refers to the process by which extra neurons and synaptic connections are eliminated in order to increase the efficiency of neuronal transmissions.

Description

Beginning in the earliest embryonic stage and lasting until approximately 2 years of age, new neurons and synapses

are formed at an amazing rate, at times reaching 40,000 new synapses formed per second [2]. By the end of this process individuals are left with far more neurons and synapses than are functionally needed and/or preferred. Synaptic pruning is the process by which these extra synapses are eliminated thereby increasing the efficiency of the neural network. The entire process continues up until approximately 10 years of age by which time nearly 50% of the synapses present at 2 years of age have been eliminated [2]. The pattern and timeline pruning follows varies based on brain region. Again the process is intended to increase the efficiency of the neurological system. In this way, synaptic pruning is not random [3]. Rather, synaptic connections that have been frequently used and thus strengthened through sensory and cognitive input as well as motor and cognitive outputs are spared [3]. Those connections that have been weakly reinforced and are no longer functional or those that are redundant with connections of adequate strength are "pruned" away [1].

The idea that pruning continues up to 10 years of age ties in with the concept of brain plasticity in early age. Specifically, early in life with pruning not yet complete young children still have extra synaptic connections in place. If an insult occurs to the brain, impeding the functionality of conditioned (i.e., strengthened) synaptic connections, extra and/or redundant connections which have yet to be pruned may then be utilized in place of the damaged pathways thus preserving the function itself.

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Syntax

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Synonyms

Grammar; Lexical configuration; Morphology; Sentence structure

Definition

The rules and structures that govern the construction of phrases or sentences.

Description

Brown [1] suggested that researchers have long been investigating the order in which children develop and understand the various components of grammar and syntax. It is generally believed that children are able to acquire language proficiency across environments and understand the language structures through the notion that mastery of syntax is based on innate and biological structures that exist among individuals. In this biological framework, any differences among individuals are highly correlated with differences in their genetic predisposition to language differences [7].

According to this genetic explanation, languages activate children's capacity to establish the parameters of languages within appropriate syntactical structures [6]. In that regard, for children with specific language disabilities, they often exhibit high syntax errors in conversation which often lead to communication difficulties [4] resulting in major social and interpersonal problems [2]. Research has also suggested that children with specific language disabilities have phonological and lexical impediment. For example, these children have difficulties with reiterating nonsense syllables and listing words which might be attributed to inadequate phonological representation, storage, and short-term memory in phonology. Research also found that lexical representations become complex in children's later years [3]. As children's receptive and expressive language ability mature, their phonological and syntactical representations are refined and enhanced [5]. It is thought that effective access and retrieval of languages often depend on successful encoding and decoding of phonological information [8].

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Systematic Eclecticism

►Multimodal Therapy

Systemic Bias that Is Associated with a Partiality to a Sub-group or Particular Group Values

►Cultural Bias

Systemic Therapy

►Constructivist Psychotherapy

Systems Theory

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Synonyms

Cybernetics; Ecological systems theory; Family systems theory; General system theory; Systems thinking

Definition

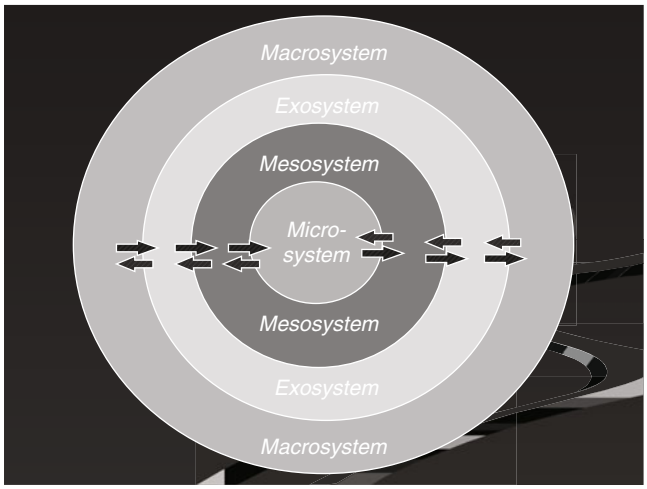
Systems theory is a conceptual framework based on the principle that the component parts of a system can best be understood in the context of the relationships with each other and with other systems, rather than in isolation.

Description

Systems theory was first introduced in the 1940s by biologist Ludwig von Bertalanffy [13] and furthered by W. Ross Ashby [1] and George Bateson [2]. Bertalanffy initially argued for open systems as opposed to the more closed systems associated with classical science. Open systems refer to systems that interact with other systems or the environment outside of the systems, whereas closed systems do not. Open systems usually include biological and social systems, whereas closed systems are mostly mechanical systems. The boundaries of open systems are more flexible than those of closed systems, which are rigid and, for the most part, impenetrable. There are various types of systems. For example, there are biological systems, mechanical systems, human/mechanical systems, ecological systems, and social systems. Systems also range from simple to complex. Complex systems, such as social systems, are comprised of numerous subsystems, each with its own boundaries. Complex systems usually interact with their environments and are, thus, open systems. Because of the interdependence between systems (or subsystems), systems rarely exist in isolation.

The principles of systems theory have been applied across fields and disciplines, including the natural sciences, social sciences, mathematics, business, and technology. Systems theory is not a single unified theory but rather a way of conceptualizing the structure and properties of an organization in terms of the relationships and interdependence among its components. Most scientists and researchers use a systems thinking approach. That is, they think in terms of systems and apply this concept to the study of systems in a variety of fields (e.g., families, biology, communication, mental health, social sciences, and technology). Thus, there are different systems theories depending on the context. For example, family systems theory is derived from the work of Minuchin [7] and Bowen [3] who applied the concepts of systems theory to families and other social systems. Family systems theory views the family as an emotional unit and uses systems thinking to describe the complex interactions within the family unit. Consistent with systems theory, a change in one person's functioning is predictably followed by reciprocal changes in the functioning of others [3].

Systems theory has also been applied to organizational development and management theory as a framework for conceptualizing organizations as multifaceted and dynamic entities comprised of smaller, interactive subsystems [6, 8, 9]. Most theorists and researchers recognize that traditional organizational theory fails to take into account many of the environmental influences that affect the efficiency of an organization and now view organizations from an open-systems perspective.



Systems Theory. Fig. 1 Ecological Systems Model. *Source*: From [11]. Reprinted with permission.

Relevance to Childhood Development

Systems theory has important applications to child development and the diagnosis and treatment of childhood disorders. A key assumption of systems theory is that an individual's problems are symptomatic of structural and interactional difficulties in a larger system [7]. The child's family or school is considered to be a dynamic open system, each component contributing to the maintenance of the whole system. The parts of the system are interconnected and what occurs in one system affects the other systems as well. Consequently, problems are not viewed as within the child, but rather as a function of the interaction of the child with systems to which he or she belong [10]. In other words, problems are conceptualized as systems-centered rather than individual-centered.

The work of Uri Bronfenbrenner [4, 5] provides an example of how systems theory has influenced the way psychologists and others approach the study of child development. Regarded as one of the world's leading scholars in the field of developmental psychology, Bronfenbrenner's ecological systems theory views the child as an inseparable part of a social system. This conceptual framework emphasizes the importance of the interrelations and linkages among a child's primary environments and the reciprocal influences of systems on a child's behavior and learning [11, 12]. Relationships among systems impact the child in two directions, toward and away from the child. Bronfenbrenner called these bi-directional influences. According to ecological systems theory, child development occurs in the context of four layers or interrelated systems. Each system contains roles, norms and rules that can effectively shape development. Bronfenbrenner called these layers the (a) microsystem (such as the family or classroom); (b) the mesosystem (which is two microsystems in interaction, e.g., home-school); (c) the exosystem (external environments which indirectly influence development, e.g., parental workplace); and (d) the macrosystem (the larger socio-cultural context). Figure 1 depicts the interrelated systems of the ecological systems model. At the microsystem level, bi-directional influences are the strongest and have the greatest impact on the child. Structures in the microsystem (e.g., family, school, or childcare environments) interact with the child and affect how he or she develops; the more nurturing these relationships, the more opportunity the child has to develop and mature normally. If the relationships in the immediate microsystem are disconnected, the child cannot explore other parts of the environment, resulting in instability and negatively affecting normal development. It is this concept of interacting systems in a child's life and the importance of shared problem-solving within and between these systems that provide a potentially powerful model for developing and delivering interventions in clinical and educational contexts [10, 11].

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Systems Therapist

►Family Therapist

Systems Thinking

►Systems Theory

T

24-hour care

►Group Homes

T Scores

►Norm-Referenced Scores
►Standard Scores

Tabula Rasa

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Synonyms

Blank slate

Definition

Tabula Rasa (Latin: Blank Slate) refers to the concept that humans are born with no native abilities, knowledge or mental capacity, and that our entire set of knowledge and skills at a given time are a product of our sensory perception and experiences up to that point in time. In the nature versus nurture controversy, proponents of the nurture position generally promote the concept of tabula rasa.

Tactile Stimulation

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Synonyms

Contact; Touch

Definition

Touch has been described as the most fundamental means of contact with the world, and the simplest and most straightforward of all sensory systems. Tactile stimulation is vital in several domains of the infant's and child's life, including social, cognitive, and physical development.

Description

Touch has been described as the most fundamental means of contact with the world [2], and the simplest and most straightforward of all sensory systems [7]. Touch is vital in several domains of the infant's and child's life, including social, cognitive, and physical development (e.g., (5)). In fact, touch is the first sense to develop in utero and by 14 weeks after gestation, the surface of the fetus is almost entirely sensitive to tactile stimulation. Touch continues to play a central role in adulthood when flirting, expressing power, soothing, playing, and maintaining proximity between child and caretaker [4]. By adulthood, the skin constitutes the largest organ of the body, covering 1.8 m^2 of the average person. As with humans, touch serves many functions in non-human primates as well. Different species groom to reconcile following aggressive encounters, to initiate sexual encounters, to reward cooperative acts of food-sharing, to maintain proximity with caretakers, and to sooth conspecifics in stress [3].

The Physiological Underpinnings of Touch

As mentioned, the skin is the largest organ of the human body and weighs between six and ten pounds [11]. The skin is a multilayered structure containing several receptors, each of which sends unique signals to the brain through neurons via the spinal cord. Information from the spinal cord enters the thalamus – the "relay station" of the brain – which then sends this input to a strip of the brain called the somatosensory cortex located on the parietal cortex. The more area on the somatosensory cortex that is dedicated to a given area of skin on the body, the more sensitive that area of skin is to tactile stimulation. Thus, areas of the body such as the fingers and lips – two of the most sensitive areas of the body to tactile stimulation – are well represented on the somatosensory cortex compared to less sensitive areas of the skin such as the back.

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Learning About the World Via Touch

Throughout life, we actively explore the world with our hands to learn about objects in the world – a process known as haptic perception [10]. Haptic perception, in conjunction with vision, is particularly important for infants to learn about the world. Research indicates that by 3 months of age infants can distinguish objects by size and shape (e.g., a cube from a hollow square), by 6 months of age they can distinguish objects by hardness and texture, by 9 months of age they can distinguish objects by weight, and by 15 months of age they can distinguish between shapes that are similar in features but differ in spatial arrangement.

Effects of Touch on Biology

Touch plays an instrumental role in brain development and growth, especially in early life [5]. Without adequate tactile stimulation early in life, the brain does not grow to a normal size and the synapses between neurons do not develop properly. In addition, adequate tactile stimulation early in life can buffer the effects of tactile deprivation later in life. Thus, exposure to adequate amounts of touch early in life seems to form a foundation for later nervous system development.

The importance of touch does not wane later in life. Research indicates that when nonhuman animals are provided extra tactile stimulation later in life, their brains increase in size and the synapses between neurons increase. Moreover, tactile stimulation can help stimulate neuronal growth due to brain lesions and infarcts in the brain later in life. In addition to studying the effects of touch on the brain, researchers have investigated the effects of touch on premature infants' growth. In one study a group of premature infants received a 10-day protocol of massage therapy comprised of tactile/kinesthetic stimulation while a control group did not receive the massage therapy protocol [6]. Compared to the control group, the treatment group gained 47% more weight, was more active and alert, and spent six fewer days in the hospital.

Effects of Touch on Cognition, Emotion, and Social Interaction

Tactile stimulation has a significant impact on cognitive development [8]. A wide body of literature suggests that cognitive development is intimately tied to brain development in the childhood years and, as mentioned, touch plays a pivotal role in neuronal development in the early years of life. Parental aversions to touch as well as harsh touch have been implicated as factors in the development of language and learning disorders. In addition, research suggests that parents who use touch to stimulate the central nervous system regularly and appropriately have children that are more likely to develop an accurate and sophisticated body image. These parents provide a variety of forms of tactile stimulation to a number of areas on the body.

Touch plays an integral role in the caregiver-child relationship from the beginning of life. In one U.S. sample, infants were touched for 33–61% of the time during brief interactions with their mothers. The frequency of contact is much higher in some cultures such as the !Kung and the Efe tribe of Zaire where mothers spend approximately 75% of the time in contact with their infants [8].

In infancy, caregivers' touch is thought to serve a variety of communicative functions while they are in contact with their infants [8]. Two of the most important are the communication of emotions, as well as the communication of security. A number of studies indicates that touch is capable of communicating and eliciting positive and negative emotions. One powerful demonstration of the power of touch to elicit positive emotions has been shown when researchers use the "still-face paradigm" to study infant emotionality. The still-face paradigm is comprised of a period of interaction when the caregiver assumes a still-face, thereby not responding to the infant's actions. During this period, infants typically react negatively because this is an unusual event in most infants' lives. Several studies indicate that if caregivers touch their infants during the still-face period, their infants' emotional displays are significantly less negative and more positive compared to infants who are not touched during the still-face period.

The quality of caregiver-infant touch is a central feature of the responsive and available caregiving environment that is necessary to foster an infant's sense of security. Several studies suggest that touch between the caregiver and infant is the "ultimate signal" of security of the infant. In one experimental study, researchers compared how infants were attached to their caregivers when they carried their infants ventrally in soft infant carriers versus those who were carried in harder infant seats [1]. The researchers found that infants carried in the soft infant carriers were significantly more likely to be securely attached to their caregivers than infants who were carried in the infant seats. This study and others strongly suggest that touch plays a key role in the communication of security to children.

Touch continues to play an integral role in social communication in adulthood [9]. For example, touch communicates power and emotions to others, as well as aids in persuading others to comply with our requests. In addition, touch increases verbal interaction among people, gains attention from others, and communicates our attraction toward others.

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Tales

►Personal Narratives

Task Goals

►Mastery Orientation

Task Involvement

►Mastery Orientation

Task Orientation

►Mastery Orientation

TAT

►Thematic Apperception Test

TBI

►Traumatic Brain Injury

Teacher Report Measures

►Behavior Assessment System for Children: Second Edition (BASC-2)

Teacher Student Relationship

►Classroom Climate

Teacher-Child Relationships

►Relationships

Teacher-Expectancy Effect

►Pygmalion Effect

Team Assisted Individualization (TAI)

►Cooperative Learning

Teams-Games-Tournaments (TCT)

►Cooperative Learning

Teen Mothers

►Adolescent Mothers

Teenage Mothers

►Adolescent Mothers

Teenagers

►Adolescence

Teens

►Adolescence

Television

►Media

Temper

►Mood

Temper Tantrums

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Synonyms

Aggressive behavior problems; Behaviorally disorganized children; Children of high emotionality; Difficult children; Inflexible-explosive children [3]

Definition

Temper tantrums are defined as "disruptive or undesirable behavior of emotional outbursts displayed in response to unmet needs or desires, or an inability to control emotions stemming from frustration or difficulty expressing the particular need or desire" [8].

Description

Temper tantrums are among the most common behavioral problems of young children reported by parents, specifically between the ages of 18 months to 4 years. Tantrums are often expressed with crying and in less-common cases with attention-getting events such as breath holding and head banging. Parents often talk about their children grunting and growling while other children make sounds similar to animal cries. Because of screaming too loudly and for so long there are cases in which children's cheek capillaries burst and their eyes become bloodshot. In extreme cases, children yell until they vomit or become inflexible and rigid [5]. During temper tantrums children may also engage in actions such as limb-flailing or foot-stomping, and if language is more developed, abusive and blasphemous words may be screamed in a violent flow of anger. During these moments children are described as demanding, unrestrained, infuriated, egocentric and omnipotent and resist any form of control [3].

Researchers underline the importance of distinguishing between disruptive behavior and normative misbehavior in preschool children. "Normative misbehaviors," such as aggression and tantrums, are exhibited by 75% of children by age 2. However, in many cases, noncompliance, temper loss and aggression are signs of disruptive behavior disorders. In order for this differentiation between normative and non-normative misbehavior to be successful, direct assessment observation is needed, either in clinical laboratories or in natural settings [7].

Temper tantrums usually develop in stages: during the first stage the tantrums start with early warnings about possible problems, afterwards the actual tantrum takes place and lasts for some minutes and finally there is a period of "hangover," when the child returns to a stable condition, after feeling tired [8]. Additionally, during tantrums, angry behaviors and shouting occur first, while sobbing occurs later on [5].

Research findings have revealed that healthy children usually demonstrate less violent, self-injurious, destructive and orally aggressive tantrum behaviors than children who meet the diagnostic criteria for mood and disruptive disorders. Furthermore, healthy children's tantrums are shorter and less severe and require less recovery time. However, researchers argue that these results cannot in any case cover the importance of individual differences in emotional development [1].

Additionally, 5 high risk tantrum styles are identified which may form the basis for determining typical versus atypical tantrum behaviors and therefore help us decide whether mental health evaluation is needed. According to the first tantrum style, consistent aggression against

caregivers or objects is displayed. In the second style, which should be considered extremely serious and is not common, children engage in self-injurious behavior during tantrums. Children falling in the range of the third tantrum style, meaning that they display 10–20 tantrum episodes in a 30-day period or have more than 5 tantrums per day, are at risk for having a serious clinical problem. In the fourth style, tantrums have a long duration, lasting 25 min or longer on average. Finally, in the fifth style, children are unable to calm themselves, regardless of the length, intensity, context and the severity of the temper tantrum. It is important to note that tantrums related to unmet typical needs, such as sleep, hunger or illness, should not cause distress [1].

Many researchers tried to answer the question whether children who demonstrate temper tantrums are at risk for becoming ill-tempered adults. One of the biggest demands that the society poses on the developing child is the need to control impulses and regulate emotional expression. However, this achievement often depends on the child's ability for ego control. Research evidence indeed verified the hypothesis that ill-tempered children develop into ill-tempered adults. Longitudinal studies have revealed that children with a stable pattern of temper tantrums in early childhood usually face difficulties in many life tasks as adults. Both sexes were facing problems at the domain of work, in their marriages, in their roles as parents, in educational and military settings and they were more at a risk for divorce or conflict in their marriages [2].

Causes

People often raise the question why some children demonstrate tantrums while others seem immune to such expressions. Researchers have identified that factors such as temperament, defenses and coping competence for dealing with risks, danger, affect stimulation and tension/frustration are factors that are possibly related to the manifestation of temper tantrums [3]. They assert that they occur in early childhood as a result of a still immature ego but research findings also reveal that temper tantrums can sometimes prove to be signs of externalizing psychopathology in childhood and a predictor for antisocial behavior in older children. However, recent surveys have revealed that certain psychosocial factors, such as maternal depression, corporal punishment, low social class, minor illness and other behavior problems could be associated with extreme temper tantrums [4].

Intervention

Temper tantrums may often have a strong impact on parents. Specifically, in cases in which parents have to deal with tantrum behaviors which are repeated and prolonged, and in cases where object-destruction or acts of serious aggression are involved, parents are more probable to become irritated, frightened by their child's behavior or even anxious about their own feelings. That could be a possible explanation for why children with temper tantrums are more at risk for abuse. It could be helpful for parents to have an idea about the duration of their child's tantrums and how long a particular one might last because in many cases the parents simply have to wait for the tantrum to end, without interfering, and these moments can be extremely frustrating or anxiety-provoking [5]. Moreover, the role of parent training is emphasized as a successful intervention for children's explosive behavior. Research findings reveal the important causal role of parenting in antisocial behavior and delinquency. Observations and parent reports demonstrate that cases of unskilled parental discipline measures are linked to high tantrums in later childhood [6].

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Temperament

►Thomas and Chess Classification of Infant

Temporal Discounting

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Synonyms

Impulsivity; Self-control; Time-delay discounting

Definition

The phenomenon in which the value of a reward decreases as the time delay until its receipt increases.

Description

Temporal discounting refers to the phenomenon in which the subjective value of some reward loses its magnitude when the given reward is delayed (see [2]). Similar to the notion of "delayed gratification," relatively high degrees of discounting are synonymous with impulsivity. On the contrary, when individuals demonstrate a sustained interest and motivation in a delayed reward, they are said to have less discounting, and thereby more self-control. Temporal discounting may be measured via two assessment methods: (1) hypothetical choice trials or (2) choices with deliverable outcomes. During hypothetical choice trials, individuals are presented with the option between a hypothetical smaller sooner reward (e.g., $5 now) and some larger delayed alternative (e.g., $10 in a week). These hypothetical choices are then titrated to find the amount in which the delay is no longer tolerable and the smaller reward becomes more preferred. While offering an actual delivery of the chosen reward alternative would be a seemingly more valid indicator of discounting, many procedural limitations exist precluding its utility. For one, hypothetical rewards do not compound across multiple choice trials, as actual rewards would become cumulative and confound the direct relationship between a delay duration and reward magnitude.

Relevance to Childhood Development

As a behavioral indicator of self-control and impulsivity, temporal discounting has been found to serve a discriminant function in adolescents in identifying students with attention deficit hyperactivity disorder and oppositional defiant disorder [1]. That is, students with these disabilities scored as more impulsive on discounting assessments. In addition, children with better self-control on discounting measures have been found to have greater verbal intelligence quotients on norm-referenced standardized tests [6]. Moreover, numerous discounting studies have suggested that this phenomenon generally improves – relative impulsivity improves – across the developmental lifespan (e.g., [4]). Examining discounting at an early age may be beneficial, as adults with high discounting scores often exhibit numerous undesirable behaviors such as compulsive gambling (e.g., [3]) and dangerous drug habits (e.g., [5]).

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Temporal Lobe Seizure

▶Psychomotor Seizures

Temporal Lobes

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Definition

The temporal lobes represent the lower lateral lobes of the cerebral cortex that play a vital role in auditory processing, receptive language, and memory.

Description

The temporal lobes represent the lower lateral lobes of the cerebral cortex that are bordered anteriorly and superiorly

by the sylvian fissure and posteriorly by the lower portion of the occipital lobe [4]. While the sylvian fissure provides a distinctive separation of the temporal lobes from the frontal and parietal lobes, such a clear separation is not seen between the temporal lobe and the occipital lobe. Rather an imaginary line that extends between the preoccipital notch and the transverse occipital sulcus known as the parieto-occipital sulcus separates these two areas [2]. Functionally the temporal lobes play a vital role in auditory processing, receptive language, and memory.

First, the temporal lobes' role in auditory processing is directly related to it housing the primary auditory cortex. This area is housed on what is referred to as Heschl's gyrus, which lies at the most superior portion of the lobe slightly inside the sylvian fissure [5]. It works in combination with the planum temporale, which lies posterior to Heschl's gyrus, also within the temporal lobe [5]. In comparison to one another Heschl's gyrus is believed to play a more prominent role in non-speech aspects of language and musical processing whereas the planum temporale is believed to play a greater role in actual speech comprehension [5].

In terms of the temporal lobes' role in receptive language, this is by way of it housing Wernicke's area, which lies just posterior to the primary auditory cortex [2]. Upon auditory stimuli being received and processed by the primary and secondary auditory centers, the information is transmitted posteriorly to Wernicke's area to assist in comprehension [3]. However, Wernicke's area can also play a role in reading and writing [3].

Finally, the temporal lobes play a vital role in memory. This is largely related to the functioning of the medial temporal lobes and the hippocampus [5], which are vital structures and regions in the consolidation of information into long-term memory. In this way the temporal lobes are important to new learning and memory. This is best exemplified by presentations that are related to impairment of new learning and memory, such as Alzheimer's disease. In this presentation the aforementioned areas of the temporal lobes represent the sites of primary affliction and thus the disease manifests largely as impairment in new learning and memory [1]. This is not to say that the temporal lobes represent the site of a memory center, rather, once information to be remembered is processed by the aforementioned structures/areas that information is sent back to various cortical areas for storage.

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Tension

▶Stress

Terminal Illness

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Synonyms

End-stage disease; Fatal illness

Definition

Terminal illness refers to an illness or disease process that is not responsive to curative medical treatment and which will worsen and eventually cause death.

Description

A person who suffers from a terminal illness is said to be terminally ill, and although it is difficult to predict exactly how long a terminally ill person will live it is often assumed that a terminal illness will result in death in 6 months or less. This timeframe is most applicable to illnesses with somewhat predicable trajectories, such as cancer. In contrast, some other common conditions such as Alzheimer's disease, organ system failure, lung disease, and AIDS, for example, may exhibit much less predictable disease trajectories and may not result in death for many months or even years. Consequently, the predictability of when an illness has reached the terminal stage can vary significantly [9].

Medical Treatments Utilized During the Course of Terminal Illness

In general, as the course of an illness progresses to the terminal stage, curative treatment options become increasingly limited. However, in search of remission or

cure, some terminally ill patients continue to pursue aggressive treatment regimens, such as chemotherapy, until the time of their death. Other terminally ill patients combine traditional western medicine with complementary treatments, and still others elect to forgo all traditional treatment approaches in favor of trying untested or alternative approaches to manage symptoms or achieve a cure [6, 14].

Regardless of which treatment approaches are utilized throughout the course of a patient's disease process, by the time an illness is terminal it is generally not responsive to curative medical interventions. When the chance of cure becomes remote and the negative side effects of aggressive treatment outweigh the benefits, some terminally ill patients discontinue curative treatment in favor of palliative care or hospice.

Palliative care is a medical specialty that aims to enhance the quality of life of patients and their families and to alleviate patient suffering associated with distressing disease symptoms or aversive side effects of medical treatments [16]. Although palliative care can be provided from the time a patient is initially diagnosed with a chronic or terminal illness, many do not receive palliative care until they are terminally ill and even then only a relatively small number of patients receive palliative care at any point during the course of their disease. The number of physicians who are trained in palliative medicine and the number of facilities which offer palliative care programs are limited. Additionally, patients are often unaware of the benefits of palliative care or only associate palliative care with hospice [8, 16].

Palliative care and hospice care share many commonalities, and in fact all hospice patients receive palliative care. However, it is hospice that is typically considered to be the gold-standard model for end-of-life care. The goal of hospice is to offer comfort, state-of-the-art pain control, symptom management, and sensitive care in an effort to reduce suffering and enhance the quality of life of terminally ill patients until their death. An interdisciplinary team of health care professionals provides daily, around-the-clock care and support throughout the course of the dying process, often at the patient's home. Like palliative care, hospice offers holistic medical care to meet the physical, social, psychological, and spiritual needs of the patient as well as the patient's family and bereavement support is also offered to families following the patient's death [3].

Regardless of which treatment approaches are pursued, dying patients and their families generally agree that preventing and managing pain and other distressing symptoms, ensuring continuity of care, supporting patient and family emotional and spiritual well-being, making informed decisions, and increasing survival time are priorities related to terminal care. Unfortunately, many families, patients, and medical professionals believe that with the exceptions of hospice and palliative care, these health care priorities for end-of-life care have yet to be satisfactorily addressed in the American health care system [8].

General Quality of Terminal Care in the United States

In 1997, the International Work Group in Death, Dying, and Bereavement published *Assumptions and Principles Underlying Standards for Terminal Care* [13]. At that time, the work group noted that medical patients routinely suffered from inept terminal care. More recently, in 2003, a report on end of life care titled: *Means to a Better End: A Report on Dying in America Today* was released by Last Acts, the nation's largest coalition advocating for improved end-of-life patient care [8]. The report graded all 50 states and the District of Columbia on the availability and use of eight key elements of end-of-life care. Unfortunately, most states earned grades of Cs or below on the eight terminal-care measures. It is not surprising then that the Institute of Medicine has identified end-of-life care as a priority for improving the quality of health care in the United States and health care providers such as Ira Byock, a nationally-recognized authority on terminal illness and hospice, has testified before Congress and argued that end-of-life care in the United States has reached a state of crisis. Finally, at the same time that Last Acts published their findings on the quality of each state's terminal care, they also released the results of a national survey showing that 93% of Americans, including those who have recently lost a loved one, are dissatisfied with end-of-life care and believe that terminal care needs to be improved.

Relevance to Childhood Development

The majority of terminal illnesses occur during adulthood. However, each year in the United States approximately 500,000 children struggle with life-limiting, serious illnesses and 30,000 pediatric deaths occur [7]. Of those 30,000 deaths the majority is accident related, but cancer accounts for 1,500 deaths and is the leading cause of disease-related death in children [1]. Caring for children with potentially fatal cancer or any other terminal illness poses unique personal and professional challenges and is quite different from caring for terminally ill adults [7]. At a very basic level the suffering and impending death of a child seems inherently unfair. It challenges an adult's

understanding of the natural order of death and triggers a profound sense of helplessness at being unable to protect the sick child.

As noted previously, the quality of care for terminally ill adults is poor and unfortunately it has been reported that terminally ill children also suffer needlessly and receive inadequate physical and psychosocial support [11]. Although hospice care would seem to best meet the multifaceted needs of terminally ill children and their families, many hospice programs lack significant experience in caring for terminally ill children. Additionally, receiving hospice care is contingent upon the cessation of all curative treatment efforts and choosing to discontinue any further life-extending treatments for a child can be an excruciating decision for both parents and physicians [1, 11].

In addition to bearing witness to the suffering of terminally ill children and struggling to find the best quality medical care for them, another challenging issue related to caring for those children is whether or not to openly share information regarding their condition and impending death. This issue has been studied and contested in the literature for over 50 years [5, 10, 12] and relates to the quality of psychosocial support offered during the course of pediatric terminal care.

The Dying Child's Understanding and Emotional Response to Their Death

Until the late 1960s, researchers reported that although terminally ill teenagers could understand their own mortality, terminally ill children under the age of ten did not possess the capacity to understand their fatal prognosis as evidenced by their lack of questions about their death. Consequently, information regarding their illness and prognosis was generally withheld from critically ill children in an effort to shield them from distress. In the early 1970s, however, several researchers discovered that terminally ill children could, in fact, express an awareness of their impending death even when no one had discussed their prognosis with them [12]. Several years later, in a seminal article, Maria Bluebond-Langner reported that fatally-ill children came to understand the seriousness of their illness through a series of five stages and fully understood the terminal nature of their illness [2]. Initially the children learned that they had a serious illness. They then proceeded to learn the names and side-effects of drugs used to treat their illness, followed by the purposes of medical procedures and treatments. As their disease progressed, they learned that they would experience a series of relapses and remissions and then ultimately understood that they would die as a result of their disease.

Since the publication of Bluebond-Langer's article and numerous corroborating reports which followed, it has become generally accepted that a child's personal experience with serious illness and medical treatment can accelerate an understanding of their prognosis such that even young children can understand the seriousness of their condition. Consequently, an essential component of providing psychosocial support for terminally ill children would seem to include encouraging open communication and answering questions in a developmentally appropriate manner [15].

In addition to providing needed information, allowing for and supporting open communication with dying children also provides essential emotional support. In spite of their ability to understand the seriousness of their health status, terminally ill children still lack emotional maturity and need the presence of caring adults to support them in their efforts to adapt to their circumstances. Unfortunately, parents and other close loved ones who would normally help the child cope with emotionally challenging situations are deeply, personally affected by the child's illness and impending death and may lack the ability to provide emotional support. Health care providers may also be unavailable to provide support because they sometimes emotionally withdraw from seriously ill children when they too are deeply affected by the child's condition [4].

Although providing end-of-life care for terminally ill children and adults is inherently challenging, it is essential that both groups receive high quality, holistic support that strives to meet their physical, emotional, social, and spiritual needs. The goal is to not simply add days, weeks, or months to a terminally ill person's life, but to add quality to their life.

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Termination

►Abortion

Test Anxiety

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Synonyms

Evaluation anxiety; Performance anxiety

Definition

Test anxiety refers to the subjective experience of intense physiological, cognitive, and/or behavioral symptoms of anxiety before or during test-taking situations that interferes with test performance.

Description

Test anxiety is a specific type of performance anxiety that occurs when a person is being evaluated formally or informally. Children most often experience test anxiety in response to taking exams, delivering presentations, and participating in class [1]. Fear of being negatively evaluated (e.g., "My teacher will think I'm stupid") is a common fear reported by children with test anxiety. Symptoms of test anxiety can be physiological (e.g., rapid heart rate, muscle tension, flushing of the skin, sleeping problems, headaches), cognitive (e.g., memory difficulties, attention problems, concentration problems, worry, problem-solving difficulties, cognitive distortions) and/or behavioral (e.g., task avoidance, withdrawal, rapid speech, fidgeting, failure to complete tasks) [2].

Test anxiety is a common occurrence that affects approximately 50% of school-aged students. It generally peaks during the elementary years and again in early adolescence, with an interim decline [1]. Symptoms related to test anxiety typically impair performance, and studies have demonstrated that children with test anxiety score significantly lower on academic achievement test when compared with other children. Children with test anxiety are also more likely to experience lower self-esteem, lower self-perceived social and cognitive competence, and more non-test anxiety. The comorbidity rate of test anxiety and generalized anxiety disorder, characterized by apprehension about many events on most days in the absence of conditions that would normally provoke such a reaction, is 50% [2].

Relevance to Childhood Development

Test anxiety is typically treated using behavioral and/or cognitive-behavioral methods. Behavioral interventions include relaxation training and systematic desensitization. In systematic desensitization, children are gradually exposed to items on a hierarchy of anxiety-provoking situations while relaxation is achieved at each step. Cognitive-behavioral strategies focus on changing irrational and/or faulty thinking patterns. For example, a child might be taught to replace their automatic thought of "I'm going to do terrible on this test" with "I am well prepared and will take one question at a time" [3].

Given the high prevalence of text anxiety among school-aged children, there has been a recent emphasis on preventative strategies. While the research on the use of these strategies for preventing test anxiety is still emerging, practices such as educating teachers about performance anxiety, altering assessment methods to make the evaluation process less threatening, and teaching students study and test-taking skills are all recommended as promising approaches [1].

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Test Observations

►Behavioral Observation

Test of Memory and Learning

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Synonyms

TOMAL-2

Definition

The Test of Memory and Learning – second edition (TOMAL-2) is an assessment of immediate verbal and nonverbal memory with a delay recall component for verbal memory.

Description

The TOMAL-2 was published in 2007 and is an individually administered assessment of memory and learning indicated for children and adults from ages 5 years 0 months through 59 years 11 months. For older adults who need a shorter battery, the assessment developers created a truncated battery to use for adults aged 55 years 0 months through 89 years 11 months [3].

Structure

Scores from the TOMAL-2 subtests provide four core index scores: Verbal Memory Index (VMI), Nonverbal Memory Index (NMI), Composite Memory Index (CMI) and Verbal Delayed Recall Index (VDRI). The indexes are derived from eight core subtests, separated into verbal and nonverbal categories. Tables 1 and 2 provide a comprehensive look at the subtests and which subtests are organized into each domain. These eight subtests will assess a wide range of memory functioning including: concrete and abstract memory functions, learning processes, and immediate and delayed recall [1].

Test of Memory and Learning. Table 1 Core and supplementary subtests of the TOMAL-2 which have a mean score of 10 and a standard deviation of 3

Core subtests	Supplementary subtests
Verbal	Verbal
Memory for stories	Letters forward
Word selective reminding	Letters backward
Object recall	Digits forward
Paired recall	Digits backward
Nonverbal	Nonverbal
Facial memory	Visual selective reminding
Abstract visual memory	Manual imitation
Visual sequential memory	
Memory for location	

Test of Memory and Learning. Table 2 Core and supplementary indexes for the TOMAL-2 which have a mean of 100 and a standard deviation of 15

Core indexes	Supplementary indexes
Verbal memory index (VMI)	Sequential recall index (SRI)
Nonverbal memory index (NMI)	Free recall index (FRI)
Composite memory index (CMI)	Associative recall index (ARI)
Verbal delayed recall index (VDRI)	Learning index (LI)
	Attention/concentration index (ACI)

The VMI assesses memory for information presented verbally and reproduced in a sequential manner. This task is especially important in diagnosing learning disabilities with primary deficits in speech and language issues in children and adults and assessing adults with occupations which rely heavily on verbal communication. This index is comprised of Memory for Stories, Word Selective Reminding, Object Recall and Paired Recall [1].

The NMI assesses memory for information that is presented nonverbally and reproduced nonverbally. This index taps into deficits in the right hemisphere, and is particularly useful in diagnosing learning disabilities with primary deficits in perceptual-motor or related nonverbal functions or in brain injured individuals with nonverbal deficits. This index is comprised of Facial Memory, Abstract Visual Memory, Visual Sequential Memory and Memory for Location [1].

The CMI assesses the overall combination of the patient's verbal and nonverbal memory by combining the scaled scores on the previous two measures. It is the most reliable measure of the patient's general memory abilities and should be interpreted first before looking at the other indexes. This index is most useful when compared to the VMI and NMI to assess for specific deficits compared to global deficits [1].

The VDRI assesses memory for information presented verbally for recall after a delayed period with distraction in between [1]. This area of memory is particularly important when assessing a patient for a traumatic brain injury, as delayed recall is typically more affected than immediate recall. Additionally, dementias or progressively deteriorating mental conditions, also are often impaired more on delayed versus immediate recall which can be crucial information in the differential diagnosis.

The goal of the TOMAL-2 is to give the examiner an idea of the memory and learning functioning of the patient. Within the subtests, the patient is asked to store and then reproduce stimuli after an intermittent time delay. On certain subtests the patient is also offered corrective feedback through reminding which allows the scoring and interpretation of learning or acquisition curves.

Learning Curves

Word Selective Reminding, Object Recall, Paired Recall and Visual Selective Reminding can be combined to calculate a learning curve across the trials. Within these subtests the examiner reminds the patient of items that were performed incorrectly and there is a high repetition component built in with these subtests. This index allows the examiner to compare learning to memory in order to shed light on differentiation between memory and other factors which could impair daily functioning [1].

Standardization

Reynolds and Voress standardized the TOMAL-2 using 1,921 individuals from a population-proportionate stratified random sampling of the United States and drawn to mimic the 2002 US Bureau of Census statistics on the basis of geographic region, race, family income, educational attainment and exceptionality status. These individuals' scores were used to derive the standard scores and norms found in the test manual. For further information on the standardization sample, see Reynolds and Voress [3].

Relevance to Childhood Development

The TOMAL-2 as an assessment to quantify deficits in memory and learning has a wide array of applications for the clinician. Primarily the test is used for diagnosing learning disabilities, traumatic brain injuries, attention deficit/hyperactivity disorder (ADHD), affective disorders and dementia and neurological/neurodevelopmental disorders [1–3]. For the pediatric population it is particularly useful in psychoeducational evaluations to diagnose learning disabilities or exceptionalities for the purpose of proper recommendations and providing appropriate accommodations [2].

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Test Theory

▶Psychometrics

Testes

▶Gonads

Testicles

▶Gonads

Testimonials

▶Personal Narratives

Testing

▶Assessment

Testing the Limits

▶Dynamic Assessment

Thalamus

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Definition

The thalamus is one structure of the diencephalon that serves as the primary relay station for sensory information, while also sharing connections with the limbic system, cerebellum, and basal ganglia as well as a number of other systems.

Description

The thalamus represents one structure of the diencephalon, which is an aspect of the forebrain. Functionally, the thalamus is most often conceptualized as the main sensory and motor relay station in the brain [3]. The thalamus exerts its influence along these lines by way of its projections to and/or from the spinal cord and cranial nerves, visual and auditory sensory receptors, and the cerebellum and basal ganglia [1, 3, 4]. However, in addition to its role in relaying sensory and motor information the thalamus also presents with projections to the limbic system as well as a number of other areas of the cerebral cortex [6].

While the thalamus, as a whole, is linked with a number of systems, structures, and functions, many of the nuclei included as part of this entity present with topographical projections that are function or system specialized [5]. The thalamus is the summation of a number of nuclei that fall into one of three functional categories: relay, intralaminar, or reticular. These categories correspond with the general role the nucleus plays. Relay nuclei are so termed as they receive incoming information from various pathways and then pass this information on to relevant areas/systems throughout the cortex [2]. The vast majority of thalamic nuclei are relay nuclei. These include the ventral posterior lateral nucleus (relays somatosensory spinal inputs to the cortex), ventral posteromedial nucleus (relays somatosensory cranial nerve inputs and taste to the cortex), lateral geniculate nucleus (relays visual inputs to the cortex), medial geniculate nucleus (relays auditory inputs to the cortex), ventral lateral nucleus, ventral anterior nucleus, and lateral dorsal nucleus (all relay basal ganglian and cerebellar inputs to the cortex), pulvinar nucleus and the lateral posterior nucleus (relays signals concerning behavioral orientation toward visual and other stimuli), ventral medial nucleus (relays signals concerning alertness and consciousness relays), mediodorsal nucleus (relay to and from the limbic system and frontal lobes), and the anterior nucleus and midline thalamic nuclei (relay to and from the limbic system) [2]. In comparison to the relay nuclei, the intralaminar nuclei are similar functionally in that they receive and then project information; however, they are differentiated in that they are housed within the internal medullary lamina and their projections primarily involve transmission to and from the basal ganglia as well as aspects of the brainstem, in lieu of projecting to the cortex like the relay nuclei do [2]. The intralaminar nuclei include the central medial nucleus, paracentral nucleus, central lateral nucleus, centromedian nucleus and parafascicular nucleus [2]. Finally, the reticular nucleus stands alone and is distinguished from the other nuclei in that it does not project to the cortex nor to the basal ganglia and/or brainstem, but instead only receives input from the cortex as well as the multitude of other thalamic nuclei that it projects back to the thalamus [2].

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Theine

▶Caffeine

Thematic Apperception Test

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Synonyms

TAT

Definition

A performance based, projective story-telling technique consisting of 31 cards that portray people in differing situations, nature scenes and 1 blank card. Subjects are

asked to make up a story about each of 20 cards chosen for administration based on gender and other variables, and are encouraged to elaborate through queries about what characters are thinking, what led up to and follows the story described, how it might end, is there a moral to the story, and so on. Subjects are encouraged to use their imagination in responding. Content and structural aspects of each story are analyzed to identify personality characteristics and emotional states of mind.

Description

The TAT, developed by Murray [4], was the result of his early studying individual differences in the measurement of personality variables. The term "apperception" reflects the test's focus on subjects' interpretation of what they see in the cards, and the meaning they attach to these perceptions [6]. Murray developed the concept of "needs" or motivational influences, together with "presses" or environmental factors working in concert to determine personality and presented case studies showing the use of the TAT to uncover these individual characteristics. He is considered the primary proponent of the *idiographic* method of personality assessment.

The TAT is one of the more widely used projective personality measures with dozens of formal scoring systems [3] but it has critics who voice concerns about poor reliability and validity, difficulty with use in certain populations, a lack of standardization, and outdated and "dark" stimulus cards [6]. These criticisms have spawned similar, alternative apperception tests including the Children's Apperception Test and the Senior Apperception Test [1], The Roberts Apperception Test for Children (Roberts-2; [5]) and the Tell-Me-A-Story-Test (TEMAS; [2]).

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Theory of Mind

►Mindblindness

Theory of Mind Task

►False Belief Task

Therapists

►Counselors
►Psychotherapist

Therapy

►Dynamic Psychotherapy

Thinking

►Cognitive Skills
►Critical Thinking

Thinking Outside of the Box

►Creativity

Thinking Styles

►Cognitive Styles

Thinking Symbolically

►Symbolic Thought

Thioridazine

►Mellaril®

Thomas and Chess Classification of Infant

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Synonyms

Behavioral style; Temperament

Definition

A system for classifying a constellation of behavioral characteristics that is present at birth and relatively stable over childhood and adolescence.

Description

In the late 1950s, the child psychiatrists Alexander Thomas (1914–2003) and Stella Chess (1914–2007) launched a 30-year longitudinal study, known as the New York Longitudinal Study of Child Temperament (NYLS). The impetus for the study was the clinicians' increasing disenchantment with the prevailing, at that time, environmental views of children's behavioral problems as a consequence of unfit, poor parenting. In their clinical practice, they observed numerous instances of children raised in caring families, who nevertheless displayed some sort of psychopathology, as well as cases of lack of behavioral problems in the context of dysfunctional parenting. It became clear that the existing theories regarding parenting as the only source of influence provided unsatisfactory and insufficient explanations for such inconsistencies.

One of the major goals of the study was to explore the origin, nature and dynamics of behavioral disorders in children. The longitudinal project evolved into a study of children's temperament, defined as a behavioral style explaining the *way* in which an individual behaves. Unlike ability and motivation, which refer to the *what*, *how well* and *why* of behavior, temperament, according to the authors, represents the *how* of behavior [3].

The initial sample, gathered over the course of 6 years, consisted of 141 children coming from 87 families, the majority of whom were Jewish (78%) and of middle and upper-middle class backgrounds. The data collection occurred in several stages: when the children were 2–3 months old, every 3 months before the infants turned 18 months, every 6 months until 5 years of age, at 7, 8, 16, 18, and 22 years of age, and finally when the subjects were in their middle and late twenties [1].

In infancy, the primary source of information was parental report of children's behavior. Data were gathered through open-ended interview questions, in which the parents were asked to provide detailed descriptions of their offspring's routine daily activities, reactions to ordinary and unusual events, special incidences, and trauma. To guard against possible parental biases in reporting, data were gathered systematically and objectively through detailed interview protocols. Parents were encouraged to describe their children's behavior in precise terms, provide specific details and refrain from subjective interpretations of their children's psychological states and motives [3]. As children grew older, additional data were gathered through teacher interviews, direct observations in the school setting by trained research personnel, examination of school records, psychometric testing, and parent and youth interviews [1].

Following the initial wave of data collection, 22 parent interviews were analyzed by the means of inductive content analysis through which nine broad dimensions of children's temperament emerged. The nine broad temperamental categories were later found to be relatively stable throughout childhood and present in children from Puerto Rican descent. These categories included: (1) *Activity Level* (i.e., the child's motor activity and the diurnal proportion of active and inactive periods); (2) *Rhythmicity/Regularity* (i.e., the extent to which bodily functions such as sleeping, feeding and elimination patterns follow a predictable vs. unpredictable schedule); (3) *Approach or Withdrawal* (i.e., the nature of the child's initial response to a novel stimulus such as a new person, event, toys, and situation. Approach is manifested in behaviors such as smiling, positive vocalization, actively reaching for the new object; whereas withdrawal is demonstrated through negative states and behaviors such as crying, fussing, grimacing, moving away, and rejecting the object); (4) *Adaptability* (i.e., the ease with which the child adjusts to changes and transitions); (5) *Threshold of Responsiveness* (i.e., the intensity of stimulation necessary to evoke a positive or negative response to sensory stimulus, objects and social contacts); (6) *Intensity of Reaction* (i.e., the energy level of the response, regardless of its duration and whether it is positive or negative in nature); (7) *Quality of Mood* (i.e., the amount of positive and negative affect and behavior); (8) *Distractibility* (i.e., the extent to which a child could be diverted from an ongoing activity or behavior through an extraneous stimulation); (9) *Attention Span and Persistence* (i.e., the duration of a particular activity pursued by the child as well as the child's inclination to continue his/her engagement in an activity when faced with obstacles and distractions).

Qualitative analysis and subsequent factor analysis of the dimensions of nine temperamental categories resulted in the

delineation of three significant temperamental constellations. Although the majority of the children in the NYLS sample were categorized using the established three temperamental constellations, the behavioral styles of approximately 35% of the children were unaccounted by the suggested classification. The researchers established substantial variability within each of the three types of temperaments.

- The first temperamental constellation was labeled "*The Easy Child*"; it was characterized by rhythmicity (regularity), positive approach, adaptability, and a predominantly positive quality of mood. The easy children, comprising approximately 40% of the NYLS sample, tend to develop quickly predictable schedules and routines, have moderate levels of motor activity, approach rather than withdraw from new experiences, adapt to new situations easily, and experience positive emotions.
- The second behavioral style was termed "*Difficult child*" and was found to be present in 10% of the NYLS sample. The constellation was characterized by irregularity in bodily functions, withdrawal from new stimuli, lack of or slow adaptability to change, and negative affectivity. The difficult child tends to establish irregular sleeping and eating patterns, be irritable, require more time to adjust to new people, situations and routines, cry frequently, have tantrums, and have inability to be soothed.
- The third temperamental constellation, evident in about 15% of the original sample, was labeled "*Slow-to-warm-up*"; it included a combination of low activity level, mild negative responses, moderate negative affectivity, slow adjustment to change, and withdrawal from new situations. These infants were shy and likely to withdraw from unfamiliar stimuli, however with repeated exposure, they tended to adapt successfully to change and transitions.

In addition, Thomas and Chess emphasized the interaction between children's temperamental profile and the environment. Temperament is that special characteristic that might predispose a child to a behavioral problem, regardless of the demands of the environment and the stress present in it. The child's individual behavioral style could not only affect the manner in which he/she responds to specific events and child-rearing practices, but it can also elicit particular favorable or unfavorable parental attitudes and behaviors. To recognize the bidirectional nature of influences, Thomas and Chess coined the term "goodness of fit," which refers to the consonance between the child's individual temperament and the demands and expectations of the environment. They maintained that there should be a good fit between a child's temperament and his/her environment in order for optimal healthy development to occur. In contrast, observed deviations from the course of normal development, manifested in a variety of indices of maladjustment, could be attributed to a poor fit or dissonance between a child's initial biological predispositions and excessive stress and environmental demands [2, 3].

The Thomas and Chess classification of children had a profound influence on subsequent conceptualizations of temperament and led to proliferation of research on the role of individual predispositions. In addition, several intervention models based on their work have emerged and have been successfully utilized both in clinical practice and work with parents [2].

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Thorazine®

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Synonyms

Chlorpromazine; Major tranquilizer; Neuroleptic

Definition

Thorazine® is a typical antipsychotic medication, brand name for chlorpromazine. This medication is FDA approved for the treatment of schizophrenia in patients above the age of 18 as well as for children over the age of 1 for treatment of disruptive and aggressive behavior disorders.

Description

Thorazine® is a dopamine receptor antagonist. It was the first medication introduced for the treatment of hallucinations and delusions. Although it is one of the oldest antipsychotics, Thorazine® is not as commonly used as other antipsychotics. It is considered low potency, meaning that a higher dosage of Thorazine® is needed in order for it to

have the same effect as a high potency antipsychotic such as Haldol®, Prolixin®, or Navane®. Because a higher dosage of Thorazine® is necessary, this agent is more sedating than high potency antipsychotic medications.

Thorazine® is available in tablets (10, 25, 50, 100, and 200), capsules (30, 75, 150, 200, and 300 mg), liquid solution (10 mg/5 mL, 30 mg/mL, 100 mg/mL), intramuscular injections (25 mg/mL), and rectal suppositories (25 mg and 100 mg).

Relevance to Childhood Development

Thorazine® may be used for the treatment of aggressiveness, impulse control, extreme irritability, hostility, and agitation. However, use of antipsychotic agents to control children's disruptive behavior has been described as controversial. It is recommended that if antipsychotics are used with children, the high-potency and less sedating antipsychotic agents are utilized instead of the more sedating low-potency drugs.

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Thorndike, Edward Lee

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Life Dates

1874–1949

Educational Information

Edward Lee Thorndike was born in Williamsburg, Massachusetts. He was raised in a strict environment and his early years were characterized by frequent moves due to his father's work as a Methodist minister. Throughout his school career Thorndike excelled academically and in 1891 selected the Methodist church supported Wesleyan University in Connecticut for his undergraduate education. During his junior year at Wesleyan, Thorndike became interested in the emerging field of psychology and began reading works by William James. He graduated from Wesleyan in 1895 with Phi Beta Kappa Honors and the ambition of becoming a secondary English teacher. Following his graduation from Wesleyan, Thorndike enrolled at Harvard University. While at Harvard he enrolled in psychology courses taught by William James. After completion of these courses, Thorndike decided to pursue a career in psychology. Also during his time at Harvard he developed an interest in animal intelligence and began a series of experiments on learning in chickens. In 1897 he left Harvard for personal reasons and enrolled at Columbia University [1].

At Columbia Thorndike was given permission to continue the animal learning experiments he began at Harvard. He began working with cats in puzzle boxes in order to test his theories regarding learning in animals. These experiments led to Thorndike's formulation of the Law of Effect. Thorndike earned his Ph.D. degree from Columbia in 1898 with the dissertation *Animal Intelligence: An Experimental Study of the Associative Processes in Animals.*

Accomplishments

The Law of Effect, developed while Thorndike was a doctoral student at Columbia, was formalized in 1905. This theory had far reaching implications for the fields of psychology and education. The Law of Effect examines the relationship between a stimulus and an organism's response to the stimulus. Responses that are paired with satisfaction or reinforcement increase the likelihood of the response reoccurring, whereas responses that are paired with dissatisfaction or discomfort decrease the likelihood of the response occurring.

Thorndike contributed heavily to the field of education during his 43 year tenure as a professor at Columbia Teacher's College. He desired to make teaching a science and published numerous books and articles on how to improve the quality of teaching in schools. Notable publications include: *Educational Psychology* (1903), *Introduction to the Theory of Mental and Social Measurements* (1904), *Principles of Teaching* (1906), *The Teacher's Word Book* (1921), *The Measurement of Intelligence* (1927), and the *Fundamentals of Learning* (1927) [2]. Many of Thorndike's books were widely read and his suggestions helped inform practice in classroom settings in the United

States and abroad. Two of the most prominent examples were the *Thorndike Arithmetics* which was adopted as the state textbook for California and Indiana with over a half million copies sold in the first year of publication, and the *Thorndike – Century Junior and Senior Dictionaries* which were also widely published and distributed [2].

In addition to his numerous publications, Thorndike was also involved in the construction of psychological assessments. He constructed the CAVD Examination in 1925 which measured four components of intelligence: sentence completion, arithmetic, vocabulary, and following directions. The CAVD test was used to assess the ability of students at Columbia and other universities. Another test developed by Thorndike to measure reasoning in the area of reading was the Thorndike-McCall Reading Tests developed in 1921.

Thorndike maintained a lifelong interest in assessment and was a founding member of the Psychological Corporation. Thorndike was elected as President of the American Psychological Association in 1912. In a 1921 poll conducted by American Men of Science, Thorndike was the top-ranked psychologist in the United States. Additionally, he served as president of the American Association for the Advancement of Science in 1933.

Contributions

Thorndike had a significant impact on two generations of professionals in the field of education. Throughout his life he was a prolific writer of both articles and books. Additionally, his Law of Effect was influential in the study of behavior, notably how rewards and punishment impact learning. Among his other contributions, Thorndike served on a committee of nine psychologists who were appointed to study how psychology could benefit the war effort during World War I.

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Thought Disorder

►Psychosis

Thoughtful Attendance to Oneself

►Self-care Development

Thoughts

►Cognitive Skills

Threat

►Risk

Threat Response

►Anxiety

Thrombophilia

►Thrombophilic Disorders

Thrombophilic Disorders

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Synonyms

Clotting disorders; Hypercoagulability; Thrombophilia

Definition

Thrombophilic Disorder is a broad term for disorders and conditions in which the blood forms clots easily or excessively, also known as thrombophilia. These disorders may result in an increased risk of blood clot formation in the veins and arteries, which can contribute to complications resulting in severe injury or death. Thrombophilic disorders can be due to either hereditary or acquired factors.

Description

Blood clotting is a natural and normal process in which the blood cells and proteins group together to form a clump, or clot, to slow or inhibit bleeding after a blood vessel has been injured. Most blood clots tend to dissolve naturally through cellular activity. Some people, however,

may experience thrombophilia, where blood clots form without the presence of injury at increased rates. These blood clots can travel through the blood stream to other locations, resulting in a thrombosis, or a blood clot that obstructs the flow of blood through the circulatory system. The resulting blockage is referred to as a venous thromboembolism. A venous thromboembolism can have serious, even fatal, implications. These blood clots can block the circulation of blood to the heart or brain, resulting in a heart attack or stroke, respectively. Clots may also obstruct the blood flow to the extremities, which left untreated, could result in tissue death (necrosis) or infection (gangrene). These clots may also lodge within the veins of the lungs, leading to potentially fatal condition known as a pulmonary embolism. Thrombophilic disorders are characterized by the increased risk of thrombosis formation, and are often diagnosed after a thrombosis or thromboembolism event has occurred.

Symptoms

The thrombophilic disorder does not usually present with its own symptoms, and is primarily only discovered after an abnormal clotting event has occurred. A thrombosis formed within the veins of the upper and lower extremities (legs, and more rarely, arms), also known as deep vein thrombosis (DVT), may cause swelling, redness, and discomfort of the area. Left untreated, the DVT can cause tissue damage or tissue death. These clots are most often diagnosed with ultrasound or other imaging tests, and are generally treated with blood-thinning drugs [2]. DVT may also occur within veins of major organ systems, such as the liver, kidney, and abdomen, and can form within the placenta or umbilical cord during pregnancy.

Causes

Thrombophilic disorders may be due to congenital/hereditary factors and/or acquired conditions. Heritable causes of thrombophilia include genetic mutations of the genes encoding the natural anticoagulants and clotting factors of the body. Acquired conditions such as Lupus, some cancers, limited mobility, and previous vein or arterial damage can promote thrombosis formation. Pregnancy, tobacco usage, prolonged periods of immobility, long periods of airplane travel, and oral contraceptives can also greatly increase the occurrence of a thrombosis, especially when paired with a preexisting heritable condition [1].

Management and Treatment

Some patients with a present thrombophilic state or increased risk for thrombophilia may require behavioral or medical intervention. Some behavioral changes, such as increased mobilization (especially during long air flights or prolonged periods of sitting), increased hydration, cessation of tobacco usage, and the use of compression stockings or mechanical compression devices during periods of immobility and injury, may be helpful. Women with an increased risk for thrombophilic disorders may be advised to limit or stop oral contraceptives and/or hormone treatment, and use blood thinners during pregnancy [1]. Some doctors may also advise daily doses of Aspirin or other blood thinners as a method of prophylaxis in some patients diagnosed with thrombophilia but with no previous thromboembolic event.

Patients who have had a thrombotic episode may be treated with a combination of blood thinners and anticoagulants. Oral anticoagulation may need to be continued on a long term basis if the thrombophilic state persists. This decision should be discussed and monitored in conjunction with input from local hematology specialists [3].

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Throw Up

▶Purging

Tics

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Synonyms

Habit; Spasm; Tourette's disorder; Twitch

Definition

A tic is a sudden and repetitive movement or vocalization.

Description

Motor tics are characterized by rapid and involuntary repetitive or jerking movements, while vocal tics are characterized by sounds or words that are repetitive and serve no function [1]. Tics can range from simple (e.g., head jerking or throat clearing) to complex (e.g., words or more complex movements). Many individuals with tics report having a "premonitory urge," or unpleasant sensation prior to ticcing that is relieved after the tic is performed. When individuals have both motor and vocal tics for at least one year, they are often diagnosed with Tourette's disorder. In the general population, the estimated prevalence of Tourette's Disorder and other tic disorders ranges from 1 to 4.8% [2], with boys being four times more likely than girls to have a tic disorder [3]. Tourette's disorder occurs in diverse racial and ethnic groups. Factors contributing to tics and tic disorders are largely considered to be biological, although behavioral factors are sometimes thought to maintain the presence of tics. Vulnerability to Tourette's disorder appears to be genetic. Tics and Tourette's disorder are first diagnosed in childhood, with age of tic onset as young as two and usually developing during childhood or early adolescence [1]. Although some people with tics have them throughout life, many experience a reduction in symptoms in late adolescence or early adulthood. Individuals with tic disorders experience impairment in a variety of domains, and the current treatment of choice for tics is pharmacotherapy (Riddle & Carson, 2001; Kurlan, 1997), although recent research has shown that behavioral therapy may also be helpful.

Relevance to Childhood Development

Tics and tic disorders are considered a diagnosis that is first made in childhood [1]. As such, they are associated with social, familial, and academic impairment in the lives of children during critical periods of learning and development. Physically, tics can result in pain, discomfort, cuts, burns, and bruises. Psychosocially children with tic disorders report disruptions in family functioning, high levels of family conflict, and occupational difficulties as they reach adulthood. They also report having low self-esteem, while their peers describe them as less socially acceptable than other children without tics. In addition to impairment caused directly by tics, having tics is associated with high comorbidity of other psychological disorders, such as attention deficit hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), trichotillomania, and other anxiety and depressive disorders. Those disorders are also associated with impairment across multiple domains. Currently, treatment options for children with tic disorders are limited due to lack of efficacious and safe pharmacological treatment options. While behavioral treatments such as habit reversal training (HRT) demonstrate promise, few rigorous studies have been completed and those treatments have yet to be disseminated to community providers.

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Time-Delay Discounting

►Temporal Discounting

Timeouts

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Synonyms

Behavior management; Negative reinforcement; Parent training; Punishment

Definition

A timeout (TO) is a behavior management procedure through which a person is separated from access to positive reinforcement following the display of inappropriate behavior, therefore, making reinforcement unavailable for some length of time.

Description

As a child behavior-management procedure, TOs have been effectively employed with children of varied functioning levels (e.g., developmentally delayed, normal intelligence) and ages (e.g., preschoolers, adolescents), in a wide variety of settings (e.g., schools, homes, inpatient settings), for the treatment of a range of externalizing problem behaviors (e.g., noncompliance, tantrumming, aggression, self-injurious behavior; [6]). Although used

extensively by parents, teachers, and others responsible for child behavior management over the past four decades, TO should not be conceptualized as a singular intervention to be employed in the same manner for all forms of child misbehavior. Rather, appropriate TO usage involves considerations of the differing forms of TO as well as the varied effects on child behavior that the technique may produce. In addition, the numerous procedural variables involved in TO implementation (i.e., the actual steps of TO usage) represent a series of options that users of the intervention may select.

Types of TO. Regarding differing TO types, Harris [7] outlined five forms arranged along a continuum of restrictiveness specific to the degree of change to a less reinforcing environment. Essentially, the varied forms of TO involve consideration of the magnitude of difference between the amount of reinforcement available to the child in the natural environment (called the time-in [TI] environment) versus the amount of reinforcement available while in TO. In order for TO to be effective, the child must perceive a noticeable difference between the positive consequences available to them in the TI environment and the lack of such positive consequences while in TO [12, 14]. It is in this way that each TO type moves along the continuum from those forms most closely resembling the reinforcement opportunities available in the TI environment to those forms conceptualized as far more restrictive.

Nonexclusion TO, the least restrictive TO type, involves removing the child from direct access to reinforcement, while permitting them to remain in the same general space to observe others [7]. For example, a child placed in TO for hitting their brother would be moved away from their brother, but remain in the same room so as to observe their brother's continued appropriate behavior and reinforcement. In addition to classification as a broad category, three specific subtypes of nonexclusion TO labeled ignoring, removal of reinforcing stimulus conditions, and contingent observation also exist [3]. Although all may not immediately seem synonymous with TO, each fits coherently with the previous definition. Ignoring simply involves turning away from the child so as to deny them access to attention for a period of time (i.e., access to adult attention is widely viewed as a primary motivating factor for child behavior). Removal of reinforcing stimulus conditions is the actual removal of some tangible object from the child's space (e.g., taking away a preferred toy for a period of time). Finally, contingent observation requires the child to observe the ongoing behavior of others, although they are not allowed to directly participate in the ongoing activity (e.g., the broad nonexclusion example outlined previously represents contingent observation TO).

Progressing along the continuum of restrictiveness are the other two broad forms of TO, labeled exclusion and isolation TO [7]. Exclusion TO also involves the removal of the child from access to reinforcement (as in nonexclusion forms), but also prohibits observation of ongoing activities, thereby, increasing the restrictiveness. Common means through which exclusion TOs are effected include facing a child to a corner or placing the child behind some visual impediment (e.g., a screen). Isolation TO, the most restrictive all of TO forms, involves complete child removal from the TI environment. Generally speaking, such procedures involve removing the child from the space in which the misbehavior occurred and placing them in a different room until TO completion. Although clear in terms of differing reinforcement contingencies between the TI and TO environments, a decision to use isolation TO should not be made hastily. Rather, issues of child safety and missed opportunities with respect to ongoing activities in the TI environment (e.g., classroom instructional time) should be given the utmost consideration. As such, some have proposed that the use of isolation TO should include a predetermined length of time for the removal, adequate supervision throughout alternative room placement, and protection of the rights of the removed child [1, 9].

Behavioral effects of TO. Regarding the differing effects that TO may have on childhood behavior, diverging possibilities exist, one commonly considered (and simple to understand) and one commonly overlooked (and more difficult to understand). First, TO is most often viewed as a behavior reduction procedure and, therefore, a punishment intervention employed to decrease the frequency of problematic behavior [12]. This relationship is simple to understand, in that TOs applied as a consequence for bad behavior lead to less such bad behavior in the future. For example, placing a child in TO for hitting their brother (as previously outlined) leads to less hitting in the future. Conversely, TO may also function to increase the behavior that it follows and, therefore, may be classified as a negative reinforcement procedure [5, 13]. Such behavioral relationships occur when placement in TO allows the child to escape completion of some aversive task or event. For example, sending a child to TO for failure to complete a math assignment may actually make the child less likely to complete math work in the future because by placing them in TO they are able to escape (i.e., get out of) math work completion. Given such divergent behavioral consequences, TO is commonly recommended as a consequence for

behaviors maintained by positive reinforcement and advised against with behaviors maintained by negative reinforcement. Although this proscription makes intuitive sense, recent research (i.e., [5]) has begun to shed new light on the possibilities of using TO with escape-type behaviors. Through the inclusion of specific TO implementation variables, the procedure may yet demonstrate applicability with such behaviors.

TO implementation variables. Procedurally, a number of TO variables are available for parents, teachers, and other adults to select from when employing a TO intervention. Although a multitude of implementation options do exist, there continues to be no agreed upon standard TO protocol. Rather, differing researchers and practitioners use different combinations of procedural variables when using TO. As such, the following presents a brief summary of some of the most common TO implementation variables.

Two initial variables to be considered are verbalized reasons and verbalized warnings. Although closely related in that both involve verbal statements from the adult to the child prior to TO placement, each is a separate variable in that the foci of the verbalizations are distinct. Specifically, verbalized reasons are stated explanations prior to TO indicating why it was initiated and verbalized warnings are statements that specify TO as the consequence for continued misbehavior. To contrast further, consider the following examples using the previously introduced illustration involving a child sent to TO for hitting their brother: (a) reason – "You hit your brother, TO." (b) warning – "If you hit your brother again you will go to TO." As can be seen from these statements obvious implementation differences exist between the use of verbalized reasons and warnings. Although little empirical study has been conducted on the individual effectiveness of either reasons or warnings, basic understanding of behavioral principles seems to indicate that if verbal interactions are to precede TO placement, they should be kept as short as possible so as to not reinforce inappropriate child behavior via access to adult verbal attention [14]. In addition, specific to the use of warnings, such verbal interaction may actually prolong the duration of inappropriate behavior as the warning essentially allows for one more occurrence of bad behavior before the adult takes corrective action.

Following the use or exclusion of verbal procedures as introduced, determinations regarding both the duration and location of TO should be made. Meaning simply the length of time a child must remain in TO prior to release, many variations of TO duration have appeared in the literature. Ranging from as short as a few seconds to several hours or more [15], TO duration is one of the most frequently reported implementation parameters across TO investigations. Although often directly outlined by researchers, individual investigations regarding the relative effectiveness of one duration versus another are scarce. Some have indicated that shorter TO durations (e.g., 1 min) are effective although longer durations (e.g., 4 min) may produce greater behavioral changes [8], although such conclusions are far from definitive. A more well established conclusion is that of a sequencing effect indicating that shorter durations are as effective as longer durations only if the shorter one precedes the longer [7]. Regarding TO location, implementation decisions often relate to the type of TO to be employed, as in those options outlined by Harris. Specifically, the choice of a nonexclusion, exclusion, or isolation TO procedure brings with it known location criteria. For example, the use of a nonexclusion TO dictates that the child remain in the natural environment, so that environment would be the TO location.

Similar to the ways in which both verbalized reasons and verbalized warnings are related yet distinct, two other TO implementation variables share similar relational aspects. More specifically, although TO escape contingencies and release procedures both involve children leaving TO, definitive procedural differences exist. Escape contingencies are methods used following a child's leaving TO prior to dismissal in an attempt to prevent such behavior from occurring again, while release procedures are the ways in which children are actually dismissed from TO by the overseeing adult. Common TO escape contingencies include (a) repeated returns – repeatedly guiding the child back to TO, (b) spanking – hitting the child on buttocks with an open hand, (c) holding – physically restraining the child in TO, and (d) barrier – use of a physical impediment to block TO escape [14]. Although past research indicates treatment efficacy of both spanking and barrier procedures [10, 11], research of repeated return procedures (which may be less aversive to children) has yet to be conducted. Regarding TO release procedures, determinations usually involve one of the following options: (a) time-based – dismissal occurs following passage of a given time duration, (b) behavior-based – dismissal occurs when specific behavioral contingencies are met (e.g., sitting quietly without protesting TO placement) absent any time requirement, (c) contingent delay – dismissal occurs when both time and behavioral requirements are met with TO extended for inappropriate behavior, and (d) child release – child makes individual determination regarding cessation of TO. Although empirical support for contingent delay release is the strongest [2, 4], results again are far from conclusive.

In sum, TO has been and continues to be an effective intervention for the treatment of a wide variety of childhood problem behaviors across multiple developmental levels, ages, and settings. Although often conceptualized as a simple procedure to be used in the same manner for all children, effective TOs require a deeper understanding of distinctive TO types, differing effects on child behavior, and interrelated implementation variables. Although briefly introduced, the previous discussion does not outline all implementation variables that influence TO effectiveness. Other variables include distinctions such as whether children are verbally instructed versus physically placed in TO, the use of some signaling device to indicate that TO has commenced, and the use of a debriefing procedure following TO dismissal among several others [15].

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Time-Series Design

►Single Subject Research Design

Timidity

►Shy Children

Timings

►Standard Celeration Charting

Titchener, Edward Bradford

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Life Dates

1867–1927

Educational Information

Titchener studied at Oxford University, and then earned his doctorate in psychology under Wilhelm Wundt (1832–1920) at Leipzig.

Accomplishments

Titchener spent his entire academic career at Cornell University, where he developed what was then the United States' largest doctoral program in psychology. He was the primary proponent of a theory he named Structuralism. Titchener's Structuralism attempted to distinguish, isolate, and

This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

catalogue mental elements such as sensations, images, and affections through the use of a trained method of reporting called introspection. As such, while Titchener was aware of and personally supported research in such areas as child, animal, social, and abnormal psychology, he did not regard such areas as the proper domain for experimental psychology. As is common with his mentor Wundt and many other German psychologists of the era, there were strong overtones of psychophysical methodology and concerns within Titchener's conceptualization of experimental psychology.

Titchener was an early member of the American Psychological Association and founded his own society, called the Experimentalists, in 1904. He published multiple research articles and mentored 56 doctoral students, and wrote a four-volume series of books entitled *Experimental Psychology* between 1901 and 1905. These books, informally referred to as "Titchener's Manuals," were written for both the psychology student and instructor, and their meticulous detail combined with an approachable writing style to provide a wider audience with a taste of the rigor Titchener's students experienced in his laboratory [4, 5].

Among Titchener's more illustrious students were Margaret Floy Washburn (1871–1939) who would be elected president of the American Psychological Association in 1921, and Edwin Boring (1886-1968) who would author the well-known text *A History of Experimental Psychology* in 1950 [1].

Contribution

While Titchener was not the only Wundtian student with a successful and influential career in the United States, he is usually portrayed as a Wundt loyalist and Structuralism is described as being nearly identical to the Wundtian system of psychology. A portion of this reputation is due to Titchener's authoritative translations of several of Wundt's major works, and another part undoubtedly stems from the manner in which Titchener's former student Boring wrote about his mentor. Boring's strong personal bond with his mentor, as described by Samelson [4], led him not only to dedicate his *A History of Experimental Psychology* to Titchener, but to place Titchener's Structuralism within the same chapters on German psychology rather than within later chapters on American psychology. In a crucial re-evaluation of Titchener's philosophy and methodology, Leahey [3] successfully argued that there are huge differences between Wundt's and Titchener's systems and that Structuralism was best described as a type of descriptive, correlational psychology. Regardless, recent research indicates that the misconception of Titchener as a sort of "mirror image" of Wundt still persists in textbooks to the present [7].

Titchener's true legacy lies neither with Structuralism nor in the misrepresentation of him as a Wundt loyalist but in his strong commitment to psychology as an experimental, rather than an applied, science. Titchener's scientific conservatism, which Leahey [3] found analogous to Skinner's radical behaviorism, provided a strong positivistic counterpoint to the applied direction of American psychology during World War I. Titchener's stress on the importance of rigorously testing consciousness theory using respected methodology within the laboratory also stood in contrast to early classical conditioning, which he regarded as a technology due to its perceived atheoretical focus. Thus, Titchener deserves credit for not only helping to establish the laboratory's primacy in psychological research but also for promoting the role of empirically-based theory-testing as the goal of psychological science, and reiterating the importance of consciousness within psychology.

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To Participate in Regular Activity Associated with Independent Living

►Activities of Daily Living

Toe or Big-Toe Phenomenon or Sign

►Babinsky Response

Token Economies

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Synonyms

Conditioned reinforcement; Motivational system; Secondary reinforcement

Definition

Token economies are based on learning principles derived from operant psychology, specifically secondary positive reinforcement, and have the objective of increasing and supporting desirable child behaviors.

Description

A token is any inanimate object such as a coin, mark on a piece of paper, ticket, or sticker. By themselves, tokens do not have intrinsic value. However, when paired (conditioned) with pleasurable consequences, tokens acquire reinforcing properties. For example, parents might give their 10-year-old son poker chips each time he completes assigned household chores. By allowing the child to exchange his earned poker chips for favorite objects and activities (e.g., watching television, purchasing a toy), the poker chips will function as positive reinforcement. Positive reinforcement is defined as a consequence following behavior which increases the future probability of that behavior.

Token economies are established first by selecting one or more "target" behaviors. These behaviors represent desirable and adaptive skills that benefit children and their quality of life. Next, the type of token and method of delivery must be selected. Grades or ratings on a report card, for example, are token stimuli experienced by virtually every school-age child.

Subsequent steps in designing token economies include choosing so called "back up" reinforcers and deciding how a child can acquire them through token exchange. Using the previously cited report card illustration, parents could have their child earn a special night out when she/he receives a certain number of "good" and "excellent" grades. The grades in this depiction are the tokens and the special night out is the "back up" reinforcer.

The effectiveness of token economies depends on the correct pairing of tokens with "back up" reinforcers and consistently presenting tokens when "target" behaviors are demonstrated. The essential procedures comprising token economies can be varied further, for example, by adding additional "target" behaviors, requiring more tokens to be accumulated before exchanging them, and changing token value. Much like our real-world economy, these manipulations can enhance motivation within an incentive-focused system.

Token economies have several advantages for improving child behavior. First, tokens bridge the gap between responding and pleasurable consequences that are provided at a later time. Second, virtually any behavior can be reinforced with tokens. Third, a token economy can be implemented in multiple settings, be they school, home, or the community. And fourth, tokens allow for the selection of idiosyncratic child preferences and delayed activities (e.g., going to the movies, having a party) as positive reinforcement.

Relevance to Childhood Development

The importance of behavior consequences in child development has long been recognized. Learning is facilitated when children experience positive effects from their behavior. As infants, the behavior-consequence contingency is dominated by adult bonding and the fulfillment of basic needs. Typical child development is then characterized by learning that is supported by social consequences such as praise, approval, and recognition. As behavior becomes more sophisticated, it is less dependent on immediate and tangible consequences but instead, is maintained by delayed and secondary sources of pleasure, often mediated "symbolically" in a manner consistent with token economies.

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TOMAL-2

►Test of Memory and Learning

Tormenters

►Bullies

Torrance Tests

►Creativity Assessment

Tot

►Infancy

Touch

►Tactile Stimulation

Tourette Syndrome

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Synonyms

Gilles de la Tourette's syndrome; Tourette's disorder

Definition

Tourette Syndrome (TS) is classified as a Tic Disorder in the *Diagnostic and Statistical Manual of Mental Disorders* [1]. TS includes four diagnostic criteria: (a) the presence of both multiple motor tics and at least one vocal tic; (b) occurrence of tics on a frequent and consistent basis for more than 1 year; (c) onset before 18 years of age; and (d) tics are not accounted for by substance use or a general medical condition such as Huntington's disease or multiple sclerosis [1].

Description

The *DSM-IV-TR* defines a "tic" as "a sudden, rapid, recurrent, nonrhythmic, stereotyped motor movement or vocalization" [1]. Motor tics include eye blinking, nose twitching, neck jerking, touching, smelling, head shaking, jumping, grooming behaviors, copropraxia (i.e., making obscene gestures), and echopraxia (i.e., imitating gestures used by others). Vocal tics include grunting, barking, sniffing, throat clearing, echolalia (i.e., repeating sounds or words used by others), and coprolalia (i.e., uttering obscene words) [1, 3]. Although coprolalia tics receive much attention in the popular media, these behaviors are relatively rare, occurring in less than 10% of people diagnosed with TS [1]. The diagnosis of TS requires the presence of multiple motor tics in addition to at least one vocal tic, frequent and consistent occurrence of tics for more than 1 year, onset before 18 years of age, and lack of other explanations for the tics (e.g., substance use, other medical conditions).

The prevalence of TS is estimated at approximately 5–30 children per 10,000 [1], although other estimates are closer to 1% of children and adolescents [8] and epidemiologic studies have presented widely varying prevalence estimates [11]. TS is diagnosed between three and five times more frequently in males than in females in clinical settings, but only about two times more frequently in males in some community samples [1]. Research suggests that TS has been found across all countries, cultures, and ethnic groups [10].

The mean age at onset of TS is between 6 and 9 years, and diagnosis usually occurs by early adolescence [1, 8]. Severity of tics can range from very mild to very severe, resulting in varying levels of distress and social stigmatization [1]. The course of TS is quite variable, but tics are typically the worst between 8 and 12 years of age, followed by a gradual decline in tic severity into young adulthood [12]. Thus, some symptoms may last into adulthood, but short- and long-term periods of remission may occur, and the severity and frequency of symptoms usually decrease in adolescence and adulthood [1]. It is estimated that about 20% of children with TS experience at least a moderate level of impairment by young adulthood, and those who continue to experience TS symptoms as adults are more likely to experience more severe symptoms such as self-injurious tics and coprolalia [5, 12]. Tics may get worse when the child is under stress or during times of excitement or fatigue, and may become less severe or frequent when the child is expending their energy concentrating on physical or mental tasks [3].

Children diagnosed with TS often demonstrate additional behavioral symptoms such as obsessions, compulsions, inattention, hyperactivity, and impulsivity, and many may experience embarrassment, depression, and peer rejection due to their tics [1]. TS also has been associated with deficits in multiple areas of neuropsychological

functioning, including intelligence, language, perceptual-motor skills, memory and learning, academic achievement, and executive function, although research with many of these areas has produced inconsistent findings [9]. Common comorbid diagnoses include Attention Deficit Hyperactivity Disorder (ADHD), Obsessive-Compulsive Disorder (OCD), and Learning Disabilities (LD) [1, 8], in addition to anxiety disorders, mood disorders, sleep disturbances, self-injurious behaviors, difficulty controlling temper, and oppositional-defiant disorder [3, 10]. ADHD co-occurs in greater than 50% of children with TS in many clinical and epidemiological studies, OCD co-occurs in about 35–50% of children with TS, and LD co-occurs in about 10–25% of children with TS; at the same time, most children who are diagnosed with ADHD, OCD, or LD do not meet criteria for TS [9].

The combination of TS and comorbid diagnoses is often associated with more severe behavioral and psychological impairment than TS alone, and research suggests that many difficulties are accounted for by comorbid conditions rather than related to TS alone [3, 10]. Thus, it appears that the likelihood of significant impairment increases as does the number of comorbid conditions or symptoms. Further, the neuropsychological, emotional-behavioral, and family functioning profile may be quite different when TS is combined with other diagnoses, which will have implications for prognosis and treatment [9].

With regard to etiology, TS is considered a genetic neurodevelopmental disorder due to strong evidence for genetic influences [1, 2]. The specific genes that contribute to TS are under investigation and numerous models for inheritance have been proposed, but the genetics of TS are not yet fully understood [10, 12], although available research suggests that TS is caused by multiple genes rather than by a single predictable gene. From a neurological perspective, TS is believed to be related to abnormal neurotransmitter activity causing disinhibition of cortico-striatal-thalamic-cortical circuitry, or circuits that link regions of the frontal lobes with subcortical structures [3]. Decreased motor inhibition due to impaired modulation of neuronal activity in the basal ganglia and thalamus has been implicated, which likely involves the circuit from the prefrontal cortex to the caudate, then to the globus pallidus and substantia nigra, then to the thalamus, and finally back to the cortex [7]. Numerous abnormalities in neural functional connectivity and specific structures have been observed among children and adolescents with TS (see [9], for a review). Specific neurotransmitter systems identified as potential causal factors in TS include dopamine, serotonin, acetylcholine, GABA amino acids, and others [10]. Environmental influences related to TS and tic severity include prenatal and perinatal insults such as maternal stress during pregnancy, maternal use of stimulant medications and smoking during pregnancy, low birth weight, and birth complications, but a lack of controlled studies prevents definitive conclusions about these variables [4, 10]. Environmental factors may interact with genetic and neurobiological factors to determine whether children with the genetic predisposition for TS will actually develop the disorder.

Evidence-based interventions for TS include pharmacological and psychosocial approaches. Currently there is greater empirical support for pharmacological approaches (e.g., typical and atypical antipsychotics, alpha-adrenergic agents, selective serotonin reuptake inhibitors) as these appear to be the most commonly used interventions for TS, although evidence is starting to accumulate for psychosocial interventions such as habit reversal training and response prevention [9]. Children with TS undergoing stimulant medication treatment for comorbid ADHD should be closely monitored for worsening tics, as stimulant medications may exacerbate tics among some children with TS [10].

Relevance to Childhood Development

Children with TS are likely to receive special education services under the Other Health Impaired category of IDEA, although they may be classified into other categories (e.g., Emotional Disturbance, Learning Disability) depending on the unique nature of their symptom presentation, comorbidity, and specific emotional, behavioral, and academic difficulties. Common academic consequences of tics include interference with reading and handwriting due to motor tics, and avoidance of reading aloud and asking questions in class due to interfering vocal tics and related embarrassment [6]. As a result, many students with TS (especially those with comorbid conditions) receive classroom accommodations or instructional modifications to address their behavioral and academic needs.

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Tourette's Disorder

►Tics
►Tourette Syndrome

Tower

►Tower Tasks

Tower of Colorado

►Tower Tasks

Tower of Hanoi

►Tower Tasks

Tower of London

►Tower Tasks

Tower of London-Drexel

►Tower Tasks

Tower Tasks

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Synonyms

Stockings of Cambridge; Tower; Tower of Colorado; Tower of Hanoi; Tower of London; Tower of London-Drexel

Definition

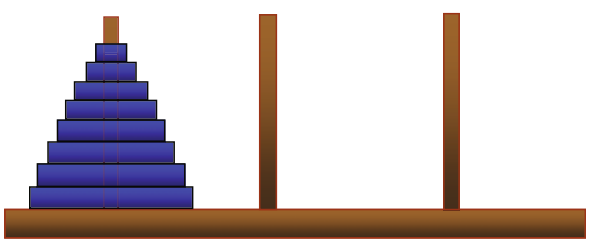
The tower tasks are puzzles most commonly used to measure planning ability. They require the individual to solve a specified problem using the least number of moves to arrive at the solution.

Description

There are multiple versions of the tower tasks [10]. The over riding feature of each is the requirement that the individual solve a problem by moving the pieces and arriving at goal position in the least number of moves. Tower tasks are most commonly used to measure planning ability. Planning refers to the ability to look ahead through a series of possible steps, some of which may be counter-intuitive, to reach a desired goal. The ability to plan is an essential part of daily living, and difficulties with this skill may impact on an individual's autonomy.

Tower of Hanoi

The Tower of Hanoi (TOH) was invented by Edouard Lucas, a French mathematician. Originally the task consisted of eight disks of increasing size that were stacked on one of three pegs (see below in Fig. 1). The goal of the



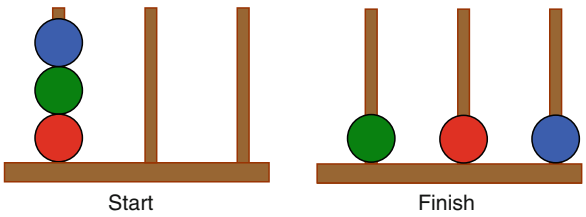
Tower Tasks. Fig. 1 An eight disk Tower of Hanoi task.

task was to move all the disks from the left peg to the right one following rules: (1) move only one disk at a time, (2) never place a larger disk on top of a smaller disk. The problem required a recursive shuffling of the disks until the problem is solved in the minimum number of moves.

Various adaptation of the TOH have been devised, one of the more recent ones appears in the Delis-Kaplan Executive Function System (D-KEFS). In this version the tower test consists of five disks which vary in size from large to small. For each of the nine problems, the participant is presented with a visual example of the tower to be built and two to five disks on the board in a predetermined starting position, depending on the level of difficulty of the tower [5]. They are then required to make the disks on the board match the ones presented in pictorial form. The rules remained the same as in the original TOH: participants were asked to plan their moves prior to starting while observing two rules, never place a larger disk on top of a smaller disk and only move one disk at a time.

Tower of London

The Tower of London was first devised by Shallice [14] to assess problem solving skills associated in patients with frontal lobe deficits [14]. Shallice suggested that although the TOH met some of the pre-requisites required for planning the task was difficult to use experimentally because of difficulties grading the levels of complexity for the different problems. Therefore, he adapted the TOH to a task that he named the Tower of London (TOL) task. In the original TOL task there are two configurations of three balls placed on three pegs (see Fig. 2). One configuration is the start point and the other the finish point. The rules for this task were that only one ball could be moved at a time. Once again the object of the task was to solve the problem in the least number of moves. Different start and finish points could increase or decrease the level of complexity of the problem. Shallice's original TOL used 12 problems of increasing difficulty. Individuals were instructed to plan all their moves prior to beginning. The problems required the formulation and execution of a series of sub-goals to complete.



Tower Tasks. Fig. 2 Tower of London task.

As with the TOH various versions of the TOL have been devised. Most of these variations manipulate the difficulty of the task by increasing the number of balls and pegs as in the Tower of Toronto task or the five disk TOL task suggested by Ward and Allport [2, 3, 15]. However, a unique variation of the TOL task was devised by the Cambridge group and is called the Stockings of Cambridge, which is computerized. In this task the participants are shown two displays of three colored balls, one in the top half of the screen and the other in the bottom half of the screen [13]. The balls are held in pockets or stockings, suspended from a line. Each pocket is a different size, one could hold only one ball, another a maximum of two balls and the third held a maximum of three balls. The participant is required to rearrange the balls in the bottom half of the screen to match the arrangement of the colored balls in the top half of the screen. A touch sensitive screen enabled the balls to be moved by the participant who selected the desired ball by touching the image of the ball on the screen and then touching an empty pocket space where they wanted to place the ball.

One difficulty with the popularization of the tower tasks is that the different variations of the TOL and TOH have been used interchangeably with patient groups, despite the fact that there is currently no evidence regarding their relative sensitivity. Another area of difficulty relates to the complexity of different tower problems. In the literature little attention has been paid to the selection of problem sets. However, recent research has placed particular importance on the selection of tower problems as it has been suggested that different aspects of individual problems may increase or decrease the level of task complexity [7, 12]. For example, subtle aspects of the TOL task may impact performance. These aspects include:

1. Sub-goals required
2. Search depth
3. Sub optimal alternatives
4. Counter intuitive moves
5. Start position
6. Goal position
7. Nested problems

At the most basic level, the number of moves can be considered an indicator of problem difficulty. However, two problems may have the same number of moves but differ with respect to the number of alternative moves available. This was outlined in the recent work by Berg and Byrd [10] in their description of the "problem space" associated with the TOL task.

The problem space defined by Berg and Byrd [10] is the graphic representation of the moves possible under the

rules of the task in which there are six permutations. As pointed out in the work of Berg and Byrd [10], for each permutation there are six possible ball positions. Each of the permutations are the same in that they have an identical six possible ball positions, but differ in the arrangements of the ball colors [1]. There are 210 spatially unique problems for each permutation in the type of TOL task ranging from 1 to 8 moves problems, giving a total of 1,260 possible unique problem sets (see [1] for a complete discussion regarding the problem space). It is easy to see that the difficulty of a particular problem may be influenced by more than just the number of moves required for its solution. For example, problems with the same number of moves may have a different "search depth" or sub-goal pattern. A sub-goal refers to moves that are essential to the solution of a given problem, but do not place a ball into its goal position [16]. The search depth is defined as the number of sub-goal moves before the first ball can be moved into a goal space. A longer search depth is considered to increase the difficulty of the problem as it requires more moves to be held in mind prior to being able to place the first ball in its goal position. Not only may a problem vary according to the number of paths available for achieving an optimal solution, but there may also be "sub-optimal alternatives." Sub-optimal alternatives refer to problems with one or more paths which take more than the minimum number of moves, but allow the first ball to be placed into its goal position within a number of moves equal to the optimal solution.

Further, the presence and number of "counter-intuitive moves" increases complexity. Counter-intuitive moves are moves that do not lead directly to the end goal and in some cases may require a ball to first be removed from its goal state in order to perform the optimal solution. Start position and finish positions may affect the individuals' performance. For example, in the flat start position, where there is one ball on each peg, there is no obvious first move. In contrast, a tower start position where all three balls on the tallest peg, the ordering of moves to obtain the finish position is more obvious [1]. Further, the latter has only two possible start moves while the former has four [1]. Moreover, a flat finish position provides an unclear final sequence, whereas a tower end gives a clear ordering for the sequence of final moves.

The importance of the finish position or "goal hierarchy" has been discussed in some depth by Kaller et al. [8]. These authors suggest that a tower end position can be considered "unambiguous" in relation to the final moves required, whereas a flat goal position can be considered "totally ambiguous." A goal position in between these two extremes may be considered "partially ambiguous." Finally, problems may be "nested," referring to the situation where the optimal path for the first problem is contained entirely in the second. The second problem differs only with regard to the additional moves at the start or finish.

Relevance to Childhood Development

The ability to perform frontal tasks such as the TOL and TOH systematically develops with age [11]. For example, younger children, 4–5 year olds, perform worse than 7–8 year olds who perform worse than adults [11]. Further, older adults (80s) perform worse than younger adults (20s) [4]. This age related ability to perform on the tower tasks is thought to reflect the development of the frontal lobes [6]. Because the ability to perform planning tasks such as the TOL and the TOH systematically develops in normally functioning children, they are able to be used in clinical contexts with children who have difficulties, including developmental delays or medical conditions and brain injury [8]. For example, children with closed head injury are likely to have more difficulty solving problems. Studies on children with traumatic brain injury indicate that severity of injury and age at testing are strongly correlated with performance on tower tasks [9].

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Tracking

►Ability Grouping

Traditions

►Culture

Trail Making Test

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Synonyms

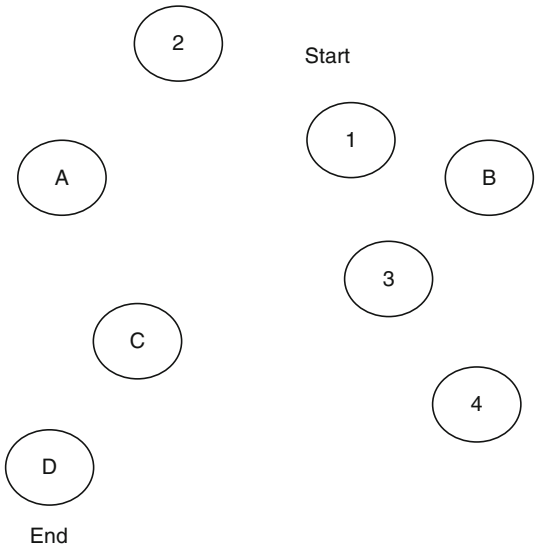
Complex trail making test; Trails

Definition

The trail making test is a neuropsychological test that assesses motor speed, speed of mental processing and mental flexibility. This test is considered to be highly vulnerable to the effects of brain injury.

Description

The original trail making test was a paper a pencil test with two parts. In part A the individual was asked to draw lines between 25 consecutively numbered circles spread randomly across a sheet of paper. Part B (sample shown below) is more difficult, the participant is asked to draw lines alternating between numbers and letters in sequence. For example, 1 → A → 2 → B, etc. They are asked to complete the task as quickly as possible without lifting the pencil from the paper. The test takes a maximum of 5–10 min to complete. The time taken to complete the task is recorded and this is used to assess the individual's performance. Norms are available to interpret the scores [6]. Performance is affected by age with older individuals taking longer to complete the task [1].



Interpretation

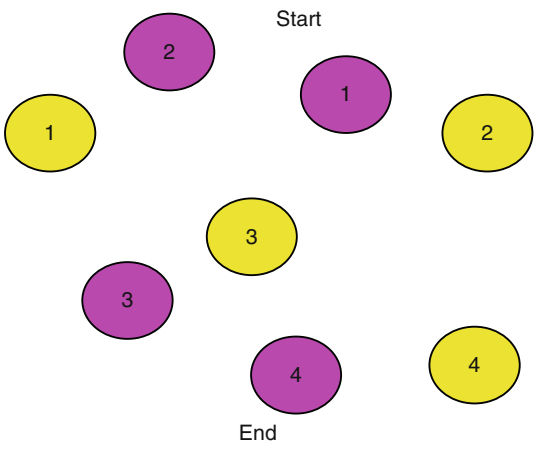
The Trail Making Test, particularly Trails B, is a good predictor of brain impairment and is useful for identifying frontal lobe damage [3, 4]. However, care must be taken in interpretation of the scores. For example, while slow performance on either part A and/or part B may suggest brain damage it could also be caused by motor slowing, lack of coordination, visual scanning difficulties and poor motivation. Other difficulties associated with this test are that it is inconsistent at differentiating individuals with brain injury from individuals with other psychiatric difficulties such as depression. So while this test has clinical utility for the identification of neuropsychological difficulties it is not a diagnostic tool.

The Trail Making Test has been included in the Delis Kaplan Executive Function System (D-KEFS) using an extended form which has five parts (visual scanning,

number sequencing, letter sequencing, number-letter switching and motor speed) [2]. This expanded form allows for a much more comprehensive assessment of performance and overcomes a number of the difficulties in the original Trail Making Test by enabling different aspects of performance to be assessed separately.

Relevance to Childhood Development

The Trail Making Test was originally designed for use with adults. However, it has been updated to include a child version. This test is only useful for children between 9 and 14 years of age. In response to the need for non culturally biased testing a Color Trails has also been developed for use with children [7] and has been successfully used with children 5 years and older. In this version Part A requires the child to correctly sequence numbers from 1 to 15. All odd numbers are embedded in circles that have pink background while all even numbers are embedded in a yellow background.



Part 2 contains numbers 1–15 in yellow and a duplicate set of numbers 1–15 in pink. For this part the child must again connect the circles in ascending order but this time must alternate between pink and yellow e.g., Pink 1, Yellow 2, Pink 3, Yellow 4, etc. [7] (see sample above).

Despite efforts to ensure that the test is culturally sensitive recent research indicates that both the Trails Test and The Children's Color Trails Test are influenced by language background and intelligence [5]. Therefore, some caution should be exercised when using the test with groups for whom English is not their first language.

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Trails

▶Trail Making Test

Tranquilizers

▶Anxiolytics/Hypnotics
▶Depressants

Transcortical Motor Aphasia

▶Childhood Aphasia

Transcortical Sensory Aphasia

▶Childhood Aphasia

Transgender

▶Gender Identity
▶Homosexuality

Transgenderism

▶Gender Identity Disorder

Transient Situational Disturbance

►Adjustment Disorder in Children

Transitional Bilingual Education

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Definition

An educational approach in the United States for students with limited English proficiency in which the students are instructed in their primary language for a limited time until they have reached sufficient proficiency in English and are then transitioned to English-only instruction.

Description

Transitional bilingual education programs are referred to as *early-exit* programs if students receive bilingual instruction (i.e., at least some instruction in primary language in addition to instruction in English) for 2 years or less and *late-exit* if students receive bilingual instruction for most or all of their elementary school years (typically around 40% of instruction in primary language until sixth grade) [1]. Language proficiency and academic achievement in English is the central long-term goal of such programs. Longitudinal research has demonstrated that late-exit bilingual education programs are associated with faster growth rates in academic achievement and similar growth rates in English language proficiency as compared to early-exit transitional bilingual education [2].

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Transmitter Substances

►Neurotransmitters

Transsexual

►Gender Identity

Transsexualism

►Gender Identity Disorder

Traumatic Brain Injury

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Synonyms

Brain disorders; Brain injury; Closed head injury; Closed head trauma; Head injury; Head trauma; Open head injury; Open head trauma; TBI

Definition

A traumatic brain injury (TBI) is an acquired injury to the brain caused by an external force to the head. The term "TBI" is *not* applied to individuals who have developmental brain disorders, such as attention deficit disorder, a cognitive disability, or a learning disability, nor is it the result of a tumor, infection, stroke, or loss of oxygen to the brain. A TBI may be classified as mild, moderate, or severe.

Description

Epidemiology, Morbidity and Mortality

According to the Centers for Disease Control (CDC), approximately 475,000 children ages birth to 14 years sustain a TBI in the United States each year. These brain injuries in children account for 37,000 hospitalizations and 435,000 emergency department visits annually, as well as approximately 2,700 deaths [8]. In fact, TBI is a leading cause of death among youth and represents a major public health concern [11]. As many as half of the deaths resulting from trauma are associated with brain injuries [7]. Virtually all of those who survive a TBI encounter adverse outcomes, which may range from a persistent vegetative state, severe disability, moderate disability, and minimal neurobehavioral impairment.

Classification of TBI

Traumatic brain injuries are classified by their level of severity. The most commonly used measure of injury severity is the Glasgow Coma Scale (GCS [9]), which can be used to assess individuals age four and over. An individual's best response in the following domains is recorded: eye opening, motor response, and verbal response. An adaptation of the GCS is shown below.

Eye opening	*Score*
Open spontaneously	4
Open to verbal command	3
Open to pain	2
No response	1
Best motor response	*Score*
Obeys verbal command	6
Localizes pain in response to painful stimulus	5
Flexion-withdrawal in response to painful stimulus	4
Abnormal flexion in response to painful stimulus	3
Extension in response to painful stimulus	2
No response	1
Best verbal response	*Score*
Oriented and converses	5
Disoriented and converses	4
Inappropriate words	3
Incomprehensible sounds	2
No response	1
Glasgow coma scale total	*3–15*

The Children's Coma Scale (CCS [5]) is a modified form of the Glasgow Coma Scale, and is recommended to assess the severity of TBI in children ages three years and younger. The CCS assesses functioning in the same three domains as those in the Glasgow Coma Scale, for a total score ranging from 3–15. A summary of the Children's Coma Scale is shown below.

Eye opening	*Score*
Spontaneous	4
Reaction to speech	3
Reaction to pain	2
No response	1
Best motor response	*Score*
Spontaneous (obeys verbal command)	6
Localizes in response to painful stimulus	5
Withdraws in response to painful stimulus	4
Abnormal flexion in response to painful stimulus	3
Abnormal extension in response to painful stimulus	2
No response	1
Best verbal response	*Score*
Smiles, oriented to sound, follows objects, interacts	5
Crying is consolable; interaction is inappropriate	4
Crying is inconsistently consolable; moaning may be present	3
Inconsolable; irritable and restless	2
No response	1
Children's coma scale total	*3–15*

A head injury is considered mild if the individual receives a GCS or CCS score between 13 and 15. Scores between 9 and 12 usually represent moderate injuries, and scores of 8 or less are indicative of severe injuries. The vast majority (85%) of traumatic brain injuries that require medical treatment are mild; 8–10% are moderate, while 6–13% are severe [11].

In addition to the depth of coma (i.e., GCS or CCS score), injury severity may also be determined by characteristics such as the duration of impaired consciousness (i.e., time period during which the child does not follow motor commands) and the length of post traumatic amnesia (PTA; i.e., time during which the child is not fully oriented and does not display intact memory for daily events) [11]. A mild traumatic brain injury may be indicated by a brief or no loss of consciousness and PTA lasting less than 24 hours. If a child is in a coma for less than 24 hours and demonstrates PTA for 1–7 days, the TBI is usually considered moderate. Severe TBI is suggested by a coma lasting more than 24 hours and PTA lasting more than 7 days.

Causes of Injury

Causes of brain injury vary significantly with age. The leading cause of TBI in infants and young children is falls, which account for about 39% of all child traumatic brain injuries [8]. Older children are more likely to sustain a TBI as a result of sports and recreational accidents and pedestrian or bicycle collisions with motor vehicles. Motor vehicle accidents cause the majority of brain injuries in the adolescent population [7].

Types of Head Injuries

A TBI is often referred to as either an "open head injury" or a "closed head injury." In an open head injury, the skull and brain are penetrated by an external object, such as a bullet from a gun. In a closed head injury, the skull and brain are not penetrated; a closed head injury may result from a fall or car accident.

The pathophysiology of a brain injury occurs at the time of impact, but continues over a period of time, possibly as long as weeks or months. The various injuries that result from a TBI may be classified as primary injuries or secondary injuries. Primary injuries are observable injuries resulting from the trauma itself. These may include skull fractures (in an open head injury), intracranial contusions and hemorrhage (i.e., bleeding within the brain), and/or mechanical injuries from nerve fibers and blood vessels. Secondary injuries result indirectly from the trauma. Brain swelling, hypoxia, hypotension, and increased intracranial pressure are all examples of secondary injuries. Secondary injuries may also include a multitude of neurochemical events. One common chain of neurochemical events includes the production of free radicals and excitatory amino acids along with the disruption of normal calcium homeostasis. These events act to exacerbate the hypoxic-ischemic insult that is a common secondary injury. Finally, secondary injuries include a variety of late effects. One is posttraumatic seizures. Approximately 3–9% of children with head injuries experience these seizures, with most of these children experiencing their first seizure within 2 years following their head trauma. Posttraumatic seizures appear to occur more commonly in younger children as well as those who sustained a penetrating injury or depressed skull fracture. Other possible but less common late effects of head injury include white matter degeneration, cerebral atrophy, enlarged ventricles, and hydrocephalus [11].

Neurobehavioral Consequences

A TBI may result in a variety of neurobehavioral consequences, depending on the specific location of the trauma in the brain, and the type (i.e., closed versus open head injury, primary versus secondary injuries) and severity of the injury. While no specific, all-inclusive list of symptoms and sequelae can be generated to describe the outcomes of every pediatric TBI, there are areas where impairments frequently occur. These domains include intellectual/cognitive, speech/language (including memory), academic, sensorimotor, and behavioral or emotional functioning [2, 4].

Intellectual and Cognitive Functioning. Impaired performance on intelligence tests is frequently seen after a child has sustained a TBI, particularly on nonverbal measures, such as the Perceptual Reasoning and Processing Speed indices on the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV). It is thought that individuals with TBI have more trouble with fluid problem-solving skills and speeded motor output, while they may do better with previously acquired knowledge. Though a child's IQ scores may significantly improve in the one to two years following a TBI, scores often remain depressed relative to pre-injury levels. This is particularly true among children with severe head injuries [11].

Memory difficulties are another common and persistent consequence of a TBI [3]. Additionally, complaints regarding attention problems very often follow childhood head injuries [11]. Finally, executive functions, such as concept formation, integrating, organizing and generalizing information, problem solving, and judgment, also tend to be negatively impacted by pediatric TBI [2].

Functional limitations associated with these commonly occurring cognitive impairments often include poor initiation of tasks and poor task orientation [3]. Unfortunately, significant cognitive weaknesses can be overlooked following TBI, as children may appear intact due to the relatively rapid recovery of mobility, self-care skills, and basic language functioning [4].

Speech and Language Functioning. Children with TBI often display pronounced difficulties with the pragmatic aspects of language [11]. Deficits have been demonstrated in a variety of skills, such as language comprehension, abstraction, making inferences, organization of verbal or written material, expression of complex ideas, and word fluency [4]. It has been suggested that receptive language improves at the same rate as cognitive and perceptual functioning. Studies further show that expressive language (speech) correlates with improvements in motor function [3].

Academic Performance. Given the cognitive deficits described above, it is not surprising that pediatric TBI is often associated with reported declines in academic functioning. Deficits in basic cognitive processes resulting from brain injury almost always cause impairment in academic performance. In some cases, this impairment may not be apparent for a year or more following the injury. As a result, when the deficits are identified, they may not be attributed to the injury. Even if correctly attributed to the TBI, however, improvements in academic achievement are often slow [2].

Research has shown that a child's premorbid academic ability is a strong predictor of reading and spelling achievement two years following a brain injury. It is suggested that the higher a child's ability prior to an injury, the higher his or her reading and spelling achievement is likely to be at 2 years post-injury. Interestingly, research does not indicate a similar effect for mathematics achievement [1].

Sensorimotor Functioning. In terms of sensory functions, some studies have shown that up to 25% of children with severe injuries display deficits on tests of stereognosis (i.e., the ability to perceive the form of an

object by using sense of touch), finger localization, and graphesthesia (i.e., the ability to recognize writing on the skin only using sense of touch) [11]. Some children report hemianopsia (i.e., blindness to one side of the visual field), diplopia (i.e., double vision), blurred vision, and even cortical blindness (i.e., loss of the ability to interpret visual information). Hearing loss occurs in approximately 35% of TBI patients. Inner ear problems are reported as much as 6 months following the injury in 50% of children with TBI. Lastly, nearly all children require extra time to process sensory information following a severe brain injury [4].

Up to 33% of children with TBI evidence some motor control sequelae, and children with these impairments may show improvement for up to 7 years post-injury [3]. Motor problems may include impairments in gait and coordination, complex psychomotor tasks, and fine motor skills [2, 11]. Children with TBI may perform better on motor tasks when speed is not a requirement. Many children regain motor abilities faster than in any other domain of functioning. Unfortunately, adults may unknowingly interpret the regaining of these abilities as a total recovery on the child's part, since the child now looks and acts "normal."

Behavioral Functioning and Emotional Disturbances. Of all the aspects of adaptive behavior, social problems with peers and family members tend to be the most unrelenting [4]. Families tend to rate behavioral disturbances and personality change as the most troublesome and persistent problem following pediatric TBI. Problems in social behavior are often associated with impaired executive functioning and prefrontal brain injury. Common behavioral sequelae from brain injury include increased aggression, poor anger control, and hyperactivity [2].

Adaptive deficits and behavioral disturbances can be related to severity of injury as well as the child's premorbid functioning [11]. Interestingly, behavioral functioning following pediatric TBI does not appear to be correlated with cognitive outcomes; thus cognitive and behavioral outcomes may be somewhat independent following the injury, and their determinants may vary significantly. Research suggests that cognitive outcomes may be related more strongly to injury-related variables, while behavioral outcomes appear to be related more strongly to measures of preinjury family functioning [12].

After a brain injury, a child might also experience depression for a variety of reasons. The child may realize, for example, that he or she has a disability and is different from classmates or peers. Additionally, the child may have enough insight to understand that he or she is no longer performing at his or her preinjury level. The child may even mourn the loss of the person he or she once was prior to the injury. It is important to note that symptoms of childhood depression often differ from those demonstrated in adulthood. Whereas depressed adults often appear sad and withdrawn, children may appear irritable and easily agitated. Thus, irritability, agitation, and anger could be a result of the brain injury itself, or could be the child's psychological reaction to the injury's effect on his or her life.

Prediction of Outcomes

Several factors appear to contribute to the outcome of a child's TBI. The severity of the injury is one of these factors, though it must be noted that there is a wide variation in outcomes even in individuals in one particular range of severity. In addition to injury severity, a child's preinjury characteristics (i.e., age, developmental level, academic achievement), family functioning, and behavioral adjustment interact with the brain injury itself to determine the child's initial presentation and long-term outcome [1, 6].

Though the clinical picture of TBI can differ from one injury or individual to another, children who survive brain injuries generally demonstrate a rather predictable sequence of recovery, moving from coma to a period of agitation and disorientation, then to more purposeful and age-appropriate behaviors. It is the duration of time in which this sequence of recovery occurs that differs according to injury severity, the child's preinjury characteristics, and his or her environment. The most rapid recovery generally takes place in the first 6–12 months after the injury, though continued gradual improvements can be observed for several years following the TBI [4].

It is a common misconception that the earlier a child sustains a head injury, the more likely he or she will be to recover, because the brain is malleable and can compensate for the deficits. In reality, however, the sequelae of the injury will often be worse the younger the child is at the time of injury. Unlike adults with TBI, children are in the midst of rapid developmental changes in all domains of functioning, including physical, cognitive, and behavioral [4]. Since developmental milestones must synchronically be met before proper development can occur, a child's neurological impairments resulting from a TBI can hinder future learning and cognitive development [10]. Recent studies suggest that children demonstrate less damage than adults early in recovery, but deficits often emerge later as the child matures [3].

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Triadic

►Family Therapist

Triangular

►Family Therapist

Triazolam

►Halcion®

Tribulation

►Bereavement

Trichotillomania

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Synonyms

Chronic hair pulling; Hair pulling

Definition

Trichotillomania is a psychological disorder that involves the pulling out of one's own hair that leads to physical damage and/or difficulties in social, occupational, or other types of functioning. In many, but not all, cases the hair pulling is preceded by a feeling of tension or arousal that is reduced or negated by the pulling. The pulling may occur from many sites but the scalp is the most common pulling area. The pulling is commonly done with one's fingers but devices such as tweezers are also used. Finally, the pulled hair is often manipulated, and in a small percentage of people it is ingested.

Description

Trichotillomania (TTM) is defined as recurrent or chronic hair pulling that (a) is preceded by an immediate increase in tension due to the pulling itself or by attempts to resist pulling; (b) results in feelings of gratification, pleasure or relief; (c) is not accounted for by another disorder; and (d) results in significant impairment or distress in important areas of functioning [1]. Due to the developmental and cognitive differences observed children and adolescents (referred to as *children* from here on), criteria (a) (preceding tension) and (b) (feeling of gratification) may not be necessary for a diagnosis of TTM in children. Similarly, hair pulling in children younger than 2 years of age may be better accounted for as a habit disorder rather than TTM.

Pulling Types and Methods

Hair pulling is generally separated into two categories: "focused" and "automatic." Focused pulling is deliberate and often done to regulate internal experiences (e.g., decrease boredom or tension). Automatic pulling occurs

habitually and without the person's immediate awareness. Focused pulling often occurs in bathrooms and in front of mirrors, whereas automatic pulling often occurs while reading or watching television. To date, three studies have examined the rates of focused versus automatic pulling [2, 3, 7]. Even though different methods were used to collect these data, it was found that between 15 and 34% of adults reported pulling that was largely focused and between 5 and 47% reported pulling that was mainly automatic. It is commonly believed that most individuals present with both types of pulling or fall on a continuum between focused and automatic pulling. Recent research shows that these constructs also capture childhood TTM [8].

The scalp is the most common pulling site in children, followed by eyelashes and eyebrows [14]. As children mature and develop hair in other areas of the body, those areas might also become pulling sites. It is estimated that 23% of children pull from a minimum of two sites [18]. Individuals with TTM often report pulling hairs that have a distinct quality such as thicker, coarser, curly, broken, or a different color than other hairs. People will often pull hairs in the hope that they can find ones that have a large follicle or a follicle that is a certain color (e.g., red from blood). Pulling is commonly done with one's fingers, but utensils such as tweezers are often used in the pulling.

After pulling, the hair may be examined and manipulated, discarded or collected, or mouthed and/or ingested. Post-pulling oral behaviors occur in approximately 48–77% of individuals with TTM [3]. Additionally, 5–18% of individuals with TTM ingest parts or entire hairs (trichophagy) which can lead to serious medical consequences [3, 4]. The development of internal hairballs (trichobezoars) can cause serious illness and in the most severe cases death [19].

Quality of Life Issues

Individuals with TTM typically pull for one or greater hours per day. Recent research examining quality of life issues in adults indicates most individuals with TTM have social impairments (e.g., decreased contact with friends, avoidance of dating, and work related distress) and negative affect as a result of their disorder. Additionally, the majority of individuals with TTM report grooming related problems, issues with physical health, and frequently avoided recreational activities [6]. Although quality of life issues have not been as extensively studied in children with TTM, specific issues include: avoidance or reluctance to attend school due to a fear of being teased by peers, habitual tardiness resulting from a loss track of time while pulling hair, difficulties with attention and concentration caused by frequent pulling in class, and criticism or punishment by teachers because of hair pulling.

Etiology and Maintenance

The most commonly espoused models for the development of TTM are neurological, animal, and behavioral. Neurological differences have been detected in individuals with TTM as compared to control participants [13, 15, 16]. In general, these findings point to a possible role within the dopamine and serotonin systems in TTM. Comparisons have been made between human hair pulling and self-injurious licking exhibited by cats and dogs. Similarly, birds sometimes pick out their own feathers for no apparent reason. Finally, mice that have mutations on the Hoxb8 gene will show excessive grooming behaviors [9]. Behavioral models generally focus on the immediate effects of the pulling in the maintenance of the disorder. Pulling serves a reinforcing function for many individuals whether it is the reduction in stress or tension or the pleasure of pulling itself.

Prevalence and Onset

Prevalence estimates for TTM vary from approximately 1–3.4% [14]. The mean age of onset for TTM is between 10.7 and 13 years of age with standard deviations of 6.3 and 8 years [3, 5]. It is generally believed that TTM is more common in adult females but that may be because females show a greater willingness to seek treatment for TTM. The gender distribution is more equal in children [12].

Comorbidity

Co-occurring disorders are common in adults with TTM, with mood, anxiety, substance use, and personality disorders being the most common. Approximately one third to two thirds of children with TTM meet criteria for a second diagnosis. Anxiety disorders and internalizing disorders are the most common.

Assessment

Validated Assessments

The *Trichotillomania Scale for Children* (TSC; [17]) specifically examines hair pulling behaviors in children by assessing severity, distress and impairment. *The Milwaukee Inventory for Styles of Trichotillomania-Child Version* (MIST-C; [8]) is helpful to determine the degree to which children with TTM have focused or automatic pulling.

Self-Monitoring/Alopecia Ratings

Treatment progress is frequently assessed using self-monitoring methods. Clients collect or count the number

of hairs pulled over a given period of time (e.g., per day or per week) which are then entered into a computer and plotted on a chart. This can serve to increase motivation for treatment because children can see their pulling decrease on the chart. Alopecia ratings are collected by taking photographs of pulling sites prior to and over the course of treatment. The photographs then allow both the client and the clinician to monitor hair growth throughout treatment.

Treatment

The first step in the treatment of TTM is a medical evaluation to rule-out a medical reason for the hair loss or pulling (e.g., ringworm, dry skin). If medical or pharmacological treatment is not warranted psychosocial interventions are the first lines of treatment. The most supported treatment for children with TTM is simplified habit reversal [11]. Simplified habit reversal involves three steps: awareness training, competing response training, and social support. Awareness training involves teaching the client to recognize the movements involved in pulling or the urges that precede pulling. These movements and the urges are labeled "warning signs." Contingent on these warning signs the client practices the competing response for 1 min. The competing response generally involves doing something else with one's hands such as making fists. Finally, a family member is taught to reinforce the correct use of the competing response. It is presumed that habit reversal is more effective with automatic pulling.

Procedures to target focused pulling have been added to the treatment of TTM such as cognitive therapy procedures [10] or procedures from acceptance and commitment therapy [20]. In addition, pharmacological interventions have been successful in treating TTM including Fluoxetine, Chlomipramine, Haloperidol, Imipramine, & Trimipramine with Chlordiazepoxide [14].

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Suggested Readings

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Suggested Website

Trichotillomania Learning Center: www.trich.org

Trileptal®

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Synonyms

Oxcarbazepine

Definition

A prescription medication FDA approved for the treatment (monotherapy or adjunctive therapy) of partial seizures in adults and children ages 4 or older with epilepsy. Also, it is approved as adjunctive therapy in the treatment of partial seizures in children two or older with epilepsy.

Description

Exactly how this medication works is not known. It is available in a tablet or as an oral suspension.

The recommended starting dose for this medication is based on weight for children and adolescents and is typically taken twice a day. Maximum suggested dose is 600 mg a day or depending on weight. The recommended starting dose for adults is 300 mg taken twice a day with the recommended daily dose being 2400 mg. The dose of this medication should be slowly increased to prevent side effects and should only be taken as directed by a doctor.

Some side effects are listed here: dizziness, tiredness, headache, upset stomach, tremor, abnormal gait, vision problems, joint pain, and weakness.

Relevance to Childhood Development

Trileptal® is FDA approved for children 2 years of age or older.

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True Twins

►Monozygotic (MZ) Twins

Trust Versus Mistrust

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Definition

Trust versus mistrust is the first stage in Erik Erikson's psychodynamic theory of psychosocial development.

Description

Erikson postulates a theory of psychosocial development that spans the lifespan and emphasizes an interaction between biological needs and the environment. According to Erikson, there are stages in development in which a child's unfolding biological needs and abilities engage the child with significant adults, resulting in interactions that help or hinder the child in meeting healthy psychosocial milestones. The patterns that emerge can be described as involving (1) key areas of the physical body, (2) the types of activity that the child is engaged in mastering at that level of development, and (3) the types of social interactions that result as the growing child relates to others with their new abilities [1]. Additionally, the resulting experiences from each stage lay the foundation for transition through the subsequent developmental stages.

Trust versus mistrust is conceptualized to coincide with infancy, defined as birth to 18 months of age. This stage is the first conflict described in Erikson's theory and coincides with the oral-sensory stages I and II in which "incorporation" [1, 3] is the most crucial action for the

infant. During this time, the infant seeks to meet their basic needs (food and physical comfort) and establish regulation (feeding, sleeping and elimination) through "incorporation" [1, 3] of input from the world. In the first part of this stage, the child learns to get what they need from the environment. In the second portion of the stage, the child learns to take a more active role in meeting their needs through burgeoning skills such as biting, grasping and discerning specific stimuli [3, 4].

The stage of trust versus mistrust is characterized by the child getting practice with trusting their caregivers to meet their needs and also with trusting themselves to cope [3]. While this experience is initially associated with biological needs, the child learns about themselves through interactions with the environment and significant others. Optimally, this period in infancy is characterized by smooth and mutually regulated interactions with the mother that comfortably satisfy the infant's needs. This interaction between mother and infant results in the infant developing trust in the mother and world that she represents. Accordingly, as this trust develops, the child can begin to accept the absence of the mother without experiencing undue anxiety. Essentially, the infant develops confidence that she will return and their environment will remain stable and predictable. This inner representation of trusted people and the formation of a qualitatively rich relationship is a cornerstone in the foundation of ego identity development. At the successful conclusion of this stage, the child emerges with a sense of trust in their caregiver, their environment and in themselves. Accordingly, if this stage is marked by unpredictable, inadequate or inconsistent care, then the child may develop a lasting sense of mistrust in the world and in themselves [3].

Relevance to Childhood Development

The Eriksonian stage of trust versus mistrust is significant to child development as it coincides with and lays the foundation for similar theories of infant development. Additionally, Erikson's ideas about the mechanism of learning to trust one's environment versus experiencing mistrust that their needs will be met converges with attachment theory and possibilities for the origins of maladaptive behaviors and psychopathology [1, 2].

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Trust Versus Mistrust (Erikson's Infant Stages)

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Definition

Erik Erickson's Trust versus Mistrust stage is the first of eight stages in his psychosocial life-span development model.

Description

Erik Erickson accepted the basic ideas of Freudian theory; however, he expanded on it by developing a life-span psychosocial dimension to Freud's theory of psychosexual development. In other words, Erickson believed that an individual is influenced by parental figures and the environment. Unlike Freud, he also believed that the personality continues to develop after the age of 5 [1].

According to Erickson's psychosocial model of development, an individual's personality becomes increasingly differentiated and hierarchically organized as it unfolds in, and is shaped by a particular environment. There are eight stages in Erickson's psychosocial model that involve a crisis or conflict. Each stage builds on successful completion of an earlier stage. If the crisis is successfully resolved then the result is adjustment, if not, then the result is maladjustment and will likely pose as a problem in the future [2].

The first stage in Erickson's psychosocial model of life-span development is called *Basic Trust versus Basic Mistrust* and is the stage that generally takes place between birth to 1 year of age. The main task in the first stage is to acquire a favorable ratio of trust to mistrust that most likely develops from the mother or primary caregiver. Trust is the foundation that gives the child a good chance of coping with later crises [5].

Caregivers are the most important figure in the child's life during the trust stage, as the infant depends on the mother or father to feed them when they are hungry and to comfort them when they are afraid or in pain. The child will ultimately tolerate having their mother out of sight because they are confident that she will return. Infants also

develop trust in themselves from the feeling that others accept them and from increased familiarity with their bodily urges. If the child's environment is trustworthy, the virtues of hope and confidence are instilled [4].

It is during this stage that the infant also learns what to fear and what not to fear. In fact, some mistrust is critical in order to allow detection of impending danger or discomfort and to discriminate between honest and dishonest people. However, if more mistrust is developed than trust, the child may be frustrated, hopeless, withdrawn, suspicious and lacking in self confidence.

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Turner Syndrome

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Synonyms

Genetic disorder; Monosomy X; Ullrich–Turner syndrome

Definition

Turner Syndrome (TS) is a chromosomal abnormality that only occurs in females. This genetic disorder leads to a variety of physical, medical, psychosocial, behavioral, and academic challenges, affecting approximately 1 out of every 2,000–3,000 live births. Prevalence is similar across all races and ethnicities [7].

Description

Several different types of TS exist, with the most common form of TS referred to as "pure TS", a diagnosis that occurs in about 50% of diagnosed females [7]. Females with this type of TS have 45, X0, and demonstrate an absence of one of the X chromosomes that the fetus should have received from either parent [7]. Individuals with this karyotype have more pronounced features of TS and are often diagnosed at a younger age. Another form of TS that occurs in about 30–40% of diagnosed females is "mosaicism." In mosaicism, the cell division that replicates the chromosomes fails to replicate the genetic material completely and some cells contain a different set of chromosomal material [7]. Diagnosis of this karyotype is often challenging given that females with this form of TS demonstrate fewer syndromic features. Other forms of TS occurring infrequently in the population feature partial deletion of one arm of the X chromosome, or a duplication of one arm of the X chromosome with the loss of the other arm [7].

Several common physical abnormalities have been found among females diagnosed with TS. These physical characteristics include short stature (somewhere between 4 feet 6 inches and 4 feet 10 inches tall), lack of spontaneous development of secondary sexual characteristics due to gonadal dysgenesis, a webbed neck, broad chest, skeletal and facial abnormalities, high-arched palate, hypoplastic or underdeveloped nails, low posterior hairline, and low-rotated ears [7]. Short stature is the most common and apparent physical abnormality in females diagnosed with TS, resulting from the loss of the SHOX (short stature homeobox-containing) gene on the X-chromosome which is important for long bone growth [7]. On average, affected females are approximately 20 cm shorter than their suspected height, and they tend to grow disproportionately and have a stocky appearance with a wide body and large hands and feet [2]. In order to attain a normal height as quickly as possible and progress through puberty at a normal age, growth hormone treatment is recommended for girls with TS [2].

Diagnosis of TS typically occurs when a female reaches late adolescence. Hearing loss is also common among females with TS. About 50% of females with TS have mild hearing loss, 60% have sensory neural hearing loss, and 25% have conductive hearing loss [6]. Hearing loss may be the result of recurrent otitis media and chronic middle ear infections [6]. Given the prevalence of hearing loss in females with TS, it is important to regularly assess hearing and middle ear function. Females with TS may evidence congenital cardiovascular defects including bicuspid aortic valve and coarctation of the aorta [9]. Approximately 3–8% of girls with TS have aortic root dilatation which can lead to aneurysms, aortic rupture, and even death [9]. Therefore, it is important for all girls who have been diagnosed with TS to regularly receive a cardiac evaluation along with a complete physical examination.

Relevance to Childhood Development

Research has demonstrated that females born with TS have Verbal IQ scores that are similar to the general population, while typically attaining lower Performance IQ scores in comparison to peers their same age [7]. Females born with TS tend to have difficulties with tasks that are largely nonverbal in nature including visual-spatial processing, visual memory, visual constructional skills, arithmetic, and executive functioning. It has been suggested that the cause of these difficulties stems from right-hemispheric dysfunction [7]. The left hemisphere is unaffected in females who have TS, therefore, difficulties with language and symbolic operations are not often observed. The most frequently occurring academic challenge affecting school age children with TS involves mathematics [7]. Most mathematic difficulties appear to involve conceptual and factual domains, which require memory ability to facilitate problem solving. Girls with a mosaic form of TS typically evidence fewer cognitive and visual-spatial difficulties than girls with the pure form of TS [7].

Females with TS tend to have lower self-esteem, difficulty forming strong peer relationships, and are more socially isolated compared to other children [7]. Such isolation often results from physical differences and abnormalities that are readily apparent to others. Children are often teased about their height and physical abnormalities in school and may be treated according to the age they appear to be rather than their actual age, contributing to lower self-esteem and social immaturity [7]. Those children who have deficits in visual-spatial processing also have a difficult time discerning various social cues and facial expressions of others [7], while evidencing difficulty reading nonverbal communication such as tone of voice and body language [7]. Females with TS frequently demonstrate behavioral problems resulting from the aforementioned social immaturity, including poor peer relationships, hyperactivity, and attention problems [7].

Growth hormone treatment has been shown to be relatively effective in assisting those with TS reach final adult stature, can be effective as early as 9 months of age, and is FDA approved at a dose of 0.375 mg/kg per week [2]. However, despite reports of early efficacy, growth hormone therapy is not typically started until the child's height falls below the 5th percentile for healthy girls of the same age [9]. Girls may increase their height as much as 8 to 10 cm on growth hormone therapy [9]. Over 90% of females with TS experience gonadal failure, therefore, estrogen therapy is used as a way to initiate pubertal development [2]. If menses does not occur by the age of 15 years old, girls with TS are treated with estrogen therapy in order to induce breast development and other features of puberty, maintain their secondary sexual development, and protect their bones from osteoporosis [9]. Puberty should commence at a physically appropriate age in females to optimize self-esteem, social adjustment, and initiation of sexual activity [3]. Estrogen therapy should only be used in girls for feminization and should be initiated only after the child has reached her final height potential and when her bone age is 12 years or more [9]. Growth hormone therapy and estrogen treatment can lead to positive changes for females with TS, including higher self-esteem, improved social and physical functioning; however, treatment should be continuously monitored by a physician [1].

Upon diagnosis, females with TS must face several psychosocial challenges. For many children, diagnosis of TS incites change in self-concept stemming from the need to accept that they are chromosomally and physically different from others their age. Some females with TS have various physical problems that may interfere with their lifestyle and quality of life, including issues related to infertility [7]. Therefore, in treating females who are diagnosed with TS it is important to receive the most accurate medical, psychological, and developmental information and intervention. When the child is of school age it is also important for parents of children with TS to collaborate with the school in order to ensure appropriate school based intervention [7]. Overall, females diagnosed with TS function well and independently in their day-to-day lives. The most challenging issue that females with TS are confronted with is dealing with premature ovarian failure and loss of fertility [2]. Under-diagnosis or delayed diagnosis has been a problem among this population, however, early detection can help to prevent medical complications [2]. A comprehensive medical and psychological evaluation should be conducted on a regular basis in order to ensure well-being and psychological adjustment.

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Twaddling

►Babbling

Twitch

►Tics

Type 1 Diabetes

►Diabetes
►Juvenile Diabetes

Type 2 Diabetes

►Diabetes

U

U.S. Army Alpha Intelligence Test

►Army Alpha Intelligence Test

U.S. Army Beta Intelligence Test

►Army Beta Intelligence Test

Uber-Ich (German)

►Superego

Ullrich–Turner Syndrome

►Turner Syndrome
►XO Syndrome

Umbilical Cord

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Synonyms

Birth cord [4]

Definition

The umbilical cord is the soft tube containing blood vessels that connects the placenta to the developing fetus [1, 2, 4–6].

Description

The umbilical cord serves as a conduit through which oxygen, nutrients, and waste products are transported between the *placenta* and the *fetus* [1–6]. The umbilical cord is formed by the fifth week of fetal development and replaces the *yolk sac* as the source of nutrients for the *fetus* [1, 2, 4]. It contains one vein, which transports oxygenated, nutrient-rich blood from the placenta to the fetus, and two arteries that transport deoxygenated, nutrient-depleted blood from the fetus to the placenta [2–4]. By full term, the umbilical cord is usually 20–22 inches (50–56 cm) long and about 0.75 inches (2 cm) [1, 2, 4–6] in diameter.

Relevance to Childhood Development

After birth, the cord is clamped and cut, and its remaining tip forms the umbilicus, which is also known as the navel or belly button [1–6]. Cord blood is a rich source of *stem cells* [2–4]. Because of this, many parents choose to save the cord blood in private cord blood banks in case future medical use becomes necessary. The cord blood cells can be used for bone marrow transplant [1–6].

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Unconditional Positive Regards for the Client

►Client-Centered Therapy

Sam Goldstein & Jack A. Naglieri (eds.), *Encyclopedia of Child Behavior and Development*, DOI 10.1007/978-0-387-79061-9,

Under the Influence

►Drinking

Underachievement

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Definition

Underachievement occurs when a child's academic performance is below what is expected based on the child's ability, aptitude or intelligence.

Description

Academic underachievement is often measured by significant discrepancies between IQ scores and grades, or between IQ and achievement test scores. It may also become apparent as a result of unexplained decreases in any or all of these measures. For example, a child who scores in the 90th percentile range on standardized tests can be expected to excel in school, to be earning As and perhaps some Bs. A child with high potential who earns less than Bs is said to be underachieving.

Characteristics of Underachieving Students

Underachievers are not a uniform group, and they may exhibit a variety of characteristics. Since no single comprehensive model exists that can organize educators' understanding of underachievement, checklists of characteristics can be especially useful. Montgomery [3] suggests that the presence of five or more of the following indicators should lead teachers to suspect that a student is underachieving:

- Inconsistent pattern of achievement in schoolwork subjects
- Inconsistent pattern of achievements within a subject area
- Discrepancy between ability and achievement, with ability much higher
- Lack of concentration
- Daydreaming
- Clowning and other work avoidance strategies
- Poor study skills
- Poor study habits
- Noncompletion or avoidance of assignments
- Refusal to write anything down
- Overactivity and restlessness
- Overassertive and aggressive or oversubmissive and timid social behavior
- Inability to form and maintain social relationships with peers
- Inability to deal with failures
- Avoidance of success
- Lack of insight about self and others
- Poor literacy skills
- Endless talking

Factors to Consider

McClelland et al. [2] suggest that there are two main sets of factors affecting the performance of able underachievers. These are *emotional and motivational factors*, and *factors concerned with strategies for learning*. McClelland et al. believe that when factors from the two sets are combined and interact they seem to have the powerful consequence of preventing able students from becoming high achievers.

These *emotional and motivational factors* include the possibility that students:

- May be unaware of their own potential: they may lack insight about themselves and others [1]
- May have low, limited, or narrow expectations [3]; Butler-Por [1] suggests that this factor can manifest itself as a lack of clear personal goals and values
- May have a sense of inadequacy and low self-esteem – indeed, they may be vulnerable to disparagement by others [1]
- May have experienced emotional difficulties and/or be prone to depression and anxiety [1]
- May be unmotivated to achieve in school, despite a high self-concept [3]
- May have a fear of failure [3]
- May have a fear of success [3]
- May have a habit of blaming others [3]

Butler-Por [1] points out that some emotional and motivational factors can stem from the influence of family and/or family background. These may include hostility in family relations; rejection of the value of that member of the family; excessive parental expectations; lack of support for emotional and social development and stability; and finally, lack of interest in the child.

Some *factors connected with the quality of learning* mentioned by McClelland et al. [2] include that students:

- May not perform well in test situations
- May achieve below expectation in one or all of the basic skill areas: reading, language arts, mathematics

- May submit work that is often unfinished or poorly done
- May avoid trying new activities
- May show tendencies to perfectionism and self-criticism
- May have difficulty functioning in a group (of any size)
- May set goals unrealistically, either too high or too low
- May dislike practice or drill work, memorization and mastery
- May find it hard to focus attention and concentrate on tasks
- May have difficulty in making and maintaining peer relationships and friendships.

Assessment

Children's levels of ability, achievement and motivation, their social/emotional functioning and other factors should be assessed using objective, subjective, and projective procedures. By including as many different types of assessment, true potential is less likely to be overlooked. These may include the following:

- Individually administered measures of intelligence;
- Comprehensive out-of-level academic placement testing;
- Projective psychological assessment;
- Gross neurological screening;
- Parent and teacher questionnaires;
- Behavioral observations and clinical interviews;
- Assessment of creative portfolios, as needed; and
- Vocational interest testing (for teens and adults), as needed.

Relevance to Childhood Development

Understanding and remediating underachievement is not just a matter of improving school performance or of addressing students' problems with learning strategies. There is also a vital psychological aspect, as those who underachieve often have problems with motivation, socialization and/or self-image. Support should be the joint responsibility of the school as a whole, subject departments, individual teachers, other supporting adults, and students' parents and families.

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Underactive

►Hypoactivity

Undernutrition

►Failure to Thrive Syndrome

Understanding

►Empathy
►Wisdom

Undesirable Life Events

►Life Events

Unfairness

►Bias, Race

Unhappiness

►Anhedonia

UNICEF

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Synonyms

United Nations Children's Fund (UNICEF)

Definition

An organization created by the United Nations General Assembly in December 1946, with the primary objective of providing emergency relief in the form of food and healthcare to mothers and children in developing countries [1, 6].

Description

UNICEF was created in 1946 as an organization that aimed to provide emergency food and healthcare for countries that had been adversely impacted during World War II. In 1953, the organization permanently became a part of the United Nations. It was also at this point that the name of the organization was modified from its original name, United Nations International Children's Emergency Fund, to its present name, The United Nations Children's Fund. UNICEF's headquarters are currently based in New York City and the general purpose of the organization remains to provide humanitarian assistance to mothers and children in developing countries. A major focus of services provided by UNICEF is to help children reach adequate development. In this regard, the organization focuses its services in the following areas: child survival and development (by providing preventative and curative healthcare, immunization, nutrition services, and basic and safe sanitary living conditions); child protection from abuse, exploitation, and violence [3]; access to education as a right of every child and gender equality in education; positively impacting children affected by HIV/AIDS by prevention of HIV transmission from mother to child and from adolescent to adolescent (by providing treatment to children infected with HIV and, by protecting and supporting children affected by HIV and AIDS in their families and communities); and policy analysis, advocacy and building partnerships for children's rights [7].

Relevance to Childhood Development

Through its humanitarian efforts in developing countries, UNICEF strives to mitigate the environmental impediments to optimal child development. For example, due to the adverse effects vitamin deficiencies have on development, UNICEF called for the mitigation of such deficiencies in developing countries. The organization put into effect deadlines for the reduction or elimination of the deficiency in multiple nutrients necessary for optimal growth and development. These include Vitamin A, iodine, and iron [2, 5]. Additionally, by taking action against violence in communities, exploitation of children, and child abuse, UNICEF strives to reduce some of the factors that adversely impact a child's development [3, 4]. Through the reduction of these factors, UNICEF enhances the chances that children in adverse environments will achieve adequate development.

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Unintended Transfer Task

►False Belief Task

Uninvolved Parenting Style

►Indifferent Parenting Style

Uninvolved Parents

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Synonyms

Indifferent parents; Neglecting parents; Rejecting parents; Rejecting/neglecting parents

Definition

Uninvolved parents are described as cold and uninterested in their child's needs. They keep their child at a distance by

minimizing time-sharing and interaction. They have a low degree of commitment to their role as parents [9].

Description

Parenting Styles

Parenting styles are described as the set of parental attitudes, practices and non-verbal expressions that characterize parent-child interactions across various situations [9]. A number of different studies reveal that the quality of parenting practices has a strong effect on children's development. Various forms of psychopathology and key emotional and behavioral problems have been associated with a range of family risk factors, such as poor parenting, lack of a warm positive relationship between children and parents, insecure attachment, and inadequate involvement with children [10].

Three prototypes of parenting style are most frequently cited: authoritarian, authoritative, and permissive [6]. This distinction was based on the assessment of a number of different dimensions, such as acceptance, control, demandingness, disciplinary practices and encouragement of autonomy [1]. However, the term "neglectful parenting," or "uninvolved parenting," was later introduced in order to be distinguished from the term "indulgent parenting," both of which were under the label of "permissive parenting" [7].

Uninvolved Parents

Permissive parents can be either warm or uninvolved with their children. However, this parenting style often reflects parents' inattention and indifference towards the child, instead of commitment [7].

As far as uninvolved parents are concerned, they demonstrate low levels of warmth-responsiveness, thereby limiting actions that are supportive and consistent with the needs and demands of the children. They provide little structure and appear indifferent and self-centered. Moreover, uninvolved parents exhibit low levels of demandingness in relevance to behavioral expectations and disciplinary practices [4]. They are often preoccupied with their own problems and they are so disengaged from parental responsibilities that they do not monitor their child's behavior or support their interests [5]. In extreme cases, this parenting style might encompass both rejecting and neglecting.

Relevance to Childhood Development

Research findings on parental management of adolescent peer relationships reveal that uninvolved parents do not generally engage in guiding their children, however they may increase guidance whenever they realize that their children have been involved in actions such as drug use. Conversely, because of the lack of parent-child relationships, the children often do not comply even when their parents are involved in their guidance. In the cases of uninvolved parents, monitoring is not sufficient enough to recompense for the problems associated with the uninvolved parenting style [8].

Moreover, children raised with the uninvolved parenting style, because of the absence of clear messages from the parents in relevance to the acceptable range of peer relationships, are at risk for selecting friends who face problems, such as drug use [8]. Likewise, neglectful parenting is often related to extremely delinquent and aggressive behaviors of children [2]. Furthermore, children brought up by uninvolved parents are at risk of exhibiting lack of frustration tolerance, emotional control, interest in schoolwork and long term goals for the future [9]. This parenting style is also linked to poor maturity, self-reliance, social responsibility and competence, independence and cognitive competence [3]. During adolescence they are often engaged in antisocial behavior, such as excessive drinking and delinquency [9]. Research findings also reveal that, among all types of parenting styles, children of uninvolved parents are the most disadvantaged and these deleterious effects accumulate over time [5].

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Unipolar Depression

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Synonyms

Major depression; Major depressive disorder or clinical depression

Definition

Unipolar depression consists of one or more episodes of moderate to severe depression with persistent depressed mood and other symptoms of depression including suicidal ideation, suicide attempts, inability to experience pleasure when doing normally pleasurable activities, impaired concentration, change in appetite, change in weight, difficulty sleeping, and/or increased sleep. These major depressive episodes cannot be due to a medical condition, medication, abused substance, or Psychosis. If Manic, Mixed, or Hypomanic Episodes develop, the diagnosis is changed to Bipolar Disorder [1].

Description

Epidemiology

Unipolar Depression (and related suicide attempts) is a major cause of death worldwide. Prevalence varies widely, from 3% in Japan, 11% in Britain to 17% in the US. In most countries the number of people who would suffer from unipolar depression during their lives falls within an 8–12% range [8]. Population studies have consistently shown unipolar depression to be about twice as common in women as in men, although it is unclear why this is so [8].

People are most likely to suffer their first depressive episode between the ages of 30 and 40. The risk of major depression is increased with neurological conditions such as stroke, Parkinson's disease, or multiple sclerosis. It is also more common after cardiovascular illnesses. According to the World Health Organization, in the year 2030, it is predicted to be the second leading cause of disease burden worldwide after HIV [9].

Comorbidity

Alcoholism and illicit drug abuse dramatically worsen the course of this illness, and are frequently associated with it. Dysthymic Disorder often precedes the onset of this disorder for 10–25% of individuals. Unipolar depression also increases risk of having Panic Disorder, Obsessive-Compulsive Disorder, Anorexia Nervosa, Bulimia Nervosa, and Borderline Personality Disorder [2].

Etiology

Unfortunately, it is not fully known what exactly causes unipolar depression. There are numerous theories about the causes of this disorder, including biological factors, genetic factors, environmental influences, and childhood or developmental events. However, it is generally believed that unipolar depression is most often caused by the influence of more than just one or two of these factors.

The biopsychosocial model proposes that biological, psychological, and environmental factors all play a role to varying degrees in causing depression. The diathesis-stress model argues that depression results when a pre-existing vulnerability is activated by stressful life events. The pre-existing vulnerability can be either genetic [3, 7], or resulting from views of the world learned in childhood. These interactive models have gained empirical support.

Biological Theories of Depression

Monoamine Dysregulation Theories

Most antidepressants increase synaptic levels of serotonin, one of a group of neurotransmitters known as monoamines. Serotonin is hypothesized to help regulate other neurotransmitter systems and decreased serotonin activity may cause these systems to act in unusual and erratic ways. According to this "permissive hypothesis," depression arises when low serotonin levels promote low levels of norepinephrine, another monoamine neurotransmitter. Some antidepressants increase the levels of norepinephrine directly, whereas others raise the levels of dopamine, a third monoamine neurotransmitter. These observations gave rise to the monoamine hypothesis of depression. The monoamine hypothesis posits that a deficiency of certain neurotransmitters is responsible for the features of depression. Norepinephrine is said to be related to alertness and energy as well as anxiety, attention, and interest in life; a lack of serotonin to anxiety, obsessions, and compulsions; and dopamine to attention, motivation, pleasure, and reward, as well as interest in life.

In the past two decades, research has revealed multiple limitations of the monoamine hypothesis, and its explanatory inadequacy has been criticized within the psychiatric

community. Intensive investigation has shown antidepressant medications do not work for everyone. Experiments with pharmacological agents that cause depletion of monoamines have shown that this depletion does not cause depression in healthy people nor does it worsen symptoms in depressed patients – although an intact monoamine system is necessary for antidepressants to achieve therapeutic effectiveness. If there were a direct causal link between the level of a neurotransmitter in the brain and depression, then we would expect a much higher rate of success with medication.

Endocrine Dysregulation Theories

Another area of research in determining the causes of unipolar depression is focused on the endocrine system. This system works with the brain to control numerous activities within the body. The endocrine system is made up of small glands within the body, which create hormones and release them into the blood. The hormones that are released into the body by the glands regulate processes such as reaction to stress and sexual development. It has been found that a great number of people who are depressed have abnormal levels of some hormones in their blood despite having healthy glands.

The hormone estrogen has been implicated in depressive disorders due to the increase in risk of depressive episodes after puberty, the antenatal period, and reduced rates after menopause [4]. The use of estrogen has been under-researched, and although some small trials show promise in its use to prevent or treat depression, the evidence for its effectiveness is not strong [4].

Additionally, of those individuals who are clinically depressed, about one-half will have an excess of the hormone cortisol. Unipolar depression may therefore also be caused in part by an overactive hypothalamic-pituitary-adrenal (HPA) axis that is similar to the neuro-endocrine response to stress. Investigations reveal increased levels of the hormone cortisol and enlarged pituitary and adrenal glands, suggesting disturbances of the endocrine system may play a role in some psychiatric disorders, including unipolar depression. Oversecretion of corticotrophin-releasing hormone from the hypothalamus is thought to drive this, and is implicated in the cognitive and arousal symptoms.

Immune System Dysfunction Theories

Various theorists have also argued that there is a link between the functioning of the immune system and the occurrence of depression. A growing body of evidence, largely based in studies of adults, shoes that exposure to chronic stress or acute loss leads to both impaired immune system functioning and depression. Impaired immune system functioning increases susceptibility to infection and consequent illness; which in turn may maintain or exacerbate depression.

Genetic Theories

At least five reports on the basis of twin studies, describing 11 subject samples, have been published demonstrating that the etiology of unipolar depression has a significant heritable component [6]. A meta-analysis of these studies estimated that the degree of heritability for unipolar depression was 0.33 (with a 95% confidence interval of 0.26–0.39). Heritability was greater in women with unipolar depression than in men, and was also most likely to cause phenotypic expression among individuals who lived in environments that provided diverse types of experience, particularly when such environments included highly stressful life events. Expression of unipolar depression's heritability is also influenced by the family environment; thus, parental coldness was found to be associated with a 38% increased risk for developing this disorder [6]. Familial dysfunction and genetic predisposition could interact to promote unipolar depression in several ways; for example, an errant gene affecting brain function might – as proposed below – make the individual more vulnerable to environmental stresses, or by impairing the child's temperament, might make life in the family intrinsically more stressful. However, just because a person inherits a gene that predisposes him or her to a depressive illness, does not mean that he or she is destined to develop unipolar depression. It is believed that a genetic influence is only partially responsible for causing depression.

Other Biological Theories

There may also be a link between depression and neurogenesis of the hippocampus, a center for both mood and memory. Loss of hippocampal neurons is found in some depressed individuals and correlates with impaired memory and dysthymic mood. Drugs may increase serotonin levels in the brain, stimulating neurogenesis and thus increasing the total mass of the hippocampus. This increase may help to restore mood and memory. Similar relationships have been observed between depression and an area of the anterior cingulate cortex implicated in the modulation of emotional behavior.

Additionally, depression may also be related to abnormalities in the circadian rhythm, or biological clock. For example, the REM stage of sleep, the one in which dreaming occurs, may be quick to arrive, and intense, in depressed people. REM sleep depends on decreased serotonin levels in the brain stem, and is impaired

by compounds, such as antidepressants, that increase serotonergic tone in brain stem structures. Overall, the serotonergic system is least active during sleep and most active during wakefulness. Prolonged wakefulness due to sleep deprivation activates serotonergic neurons, leading to processes similar to the therapeutic effect of antidepressants, such as the selective serotonin reuptake inhibitors (SSRIs). Depressed individuals can exhibit a significant lift in mood after a night of sleep deprivation. SSRIs may directly depend on the increase of central serotonergic neurotransmission for their therapeutic effect, the same system that impacts cycles of sleep and wakefulness.

Furthermore, research on the effects of light therapy on treating seasonal affective disorder suggests that light deprivation is related to decreased activity in the serotonergic system and to abnormalities in the sleep cycle, particularly insomnia. Exposure to light also targets the serotonergic system, providing more support for the important role this system may play in depression. Sleep deprivation and light therapy both target the same brain neurotransmitter system and brain areas as antidepressant drugs, and are now used clinically to treat depression.

Psychological Theories of Depression

Various aspects of personality and its development appear to be integral to the occurrence and persistence of depression. Although depressive episodes are strongly correlated with adverse events, a person's characteristic style of coping may be correlated with their resilience. Additionally, low self-esteem and self-defeating or distorted thinking are related to depression.

American psychiatrist Aaron T. Beck developed a cognitive model of depression where he proposed that three concepts underlie depression: a triad of negative thoughts comprising cognitive errors about oneself, one's world, and one's future; recurrent patterns of depressive thinking and distorted information processing. From these principles, he developed the structured technique of cognitive behavioral therapy (CBT).

Depressed individuals often blame themselves for negative events. In a study of hospitalized adolescents with self-reported depression, those who felt responsible for negative events did not take credit for positive outcomes. This tendency is characteristic of a depressive attributional, or pessimistic explanatory style. According to Albert Bandura, a Canadian social psychologist associated with social cognitive theory, depressed individuals have negative beliefs about themselves, based on experiences of failure, observing the failure of social models, a lack of social persuasion that they can succeed, and their own somatic and emotional states including tension and stress. These influences may result in a negative self-concept and a perceived lack of self-efficacy; that is, they do not believe they can influence events or achieve personal goals.

Environmental Causes

Environmental events are those things that happen in the course of our everyday lives. These may include situations such as prolonged stress at home or work, coping with the loss of a loved one, or traumatic events.

It has long been understood that experiences we have in our lives can affect our state of mind. The relationships we have with others, how we are brought up, losses we have, and crises we encounter all may affect our thoughts, emotions, and behaviors. How we react to these environmental events may influence the development of unipolar depression. An examination of depression in women indicates that vulnerability factors – such as early maternal loss, lack of a confiding relationship, responsibility for the care of several young children at home, and unemployment – can interact with life stressors to increase the risk of depression. For older adults, the factors are often health problems, changes in relationships with a spouse or adult children due to the transition to a care-giving or care-needing role, the death of a significant other, or a change in the availability or quality of social relationships with older friends because of their own health-related life changes. Child abuse (physical, emotional, sexual, or neglect) is also associated with increased risk of developing depressive disorders later in life. In adulthood, stressful life events are strongly associated with the onset of unipolar depressive episodes; a first episode is more likely to be immediately preceded by stressful life events than are recurrent ones. Adverse conditions at work, particularly demanding jobs with little scope for decision-making, are associated with depression, although confounding factors make it difficult to confirm that the relationship is causal.

Features

Unipolar depression is a serious illness that affects a person's family, work or school life, sleeping, eating habits, and general health. A person suffering a unipolar depressive usually exhibits a very low mood pervading all aspects of life and an inability to experience pleasure in previously enjoyable activities. Depressed people may be preoccupied with, or ruminate over, thoughts and feelings of worthlessness, inappropriate guilt or regret, helplessness, hopelessness, and self hatred [1]. Other symptoms include poor concentration and memory, withdrawal from social

situations and activities, reduced sex drive, and thoughts of death or suicide. Insomnia is common: in the typical pattern, a person wakes very early and is unable to get back to sleep [1]. Hypersomnia, or oversleeping, is less common [1]. Appetite often decreases, with resulting weight loss, although increased appetite and weight gain occasionally occur [1]. The person may report multiple physical symptoms such as fatigue, headaches, or digestive problems; physical complaints are the most common presenting problem in developing countries according to the World Health Organization's criteria of depression [6]. Family and friends may notice that the person's behavior is either agitated or lethargic [1]. Older depressed persons may have cognitive symptoms of recent onset, such as forgetfulness, and a more noticeable slowing of movements. In severe cases, depressed people may have symptoms of psychosis such as delusions or, less commonly, hallucinations, usually of an unpleasant nature [1]. Among children, symptoms of depression may be expressed as irritable mood.

Treatment

The three most common treatments for depression are psychotherapy, medication, and electroconvulsive therapy. Psychotherapy is the treatment of choice for people under 18, while electroconvulsive therapy is only used as a last resort. Some studies have shown that antidepressant drug therapy combined with psychotherapy appears to have better results than either therapy alone.

Psychotherapy

The most studied form of psychotherapy for depression is CBT, thought to work by teaching clients to learn a set of useful cognitive and behavioral skills. Earlier research suggested that CBT was not as effective as antidepressant medication; however, more current research suggests that it can perform as well as antidepressants in patients with moderate to severe depression. Overall, evidence shows CBT to be effective in depressed adolescents [10], although one systematic review noted there was insufficient evidence for severe episodes.

There is also evidence for the effective treatment of unipolar depression using interpersonal psychotherapy (IPT). This form of therapy focuses on the social and interpersonal triggers that may cause depression. The therapy takes a structured course with a set number of weekly sessions (often 12), and the focus is on relationships with others. Therapy can be used to help a person develop or improve interpersonal skills to allow him or her to communicate more effectively and reduce stress.

Furthermore, psychoanalysis is used to treat clients presenting with unipolar depression. However, a more widely practiced, eclectic technique, called psychodynamic psychotherapy, is loosely based on psychoanalysis and has an additional social and interpersonal focus. In a meta-analysis of three controlled trials of Short Psychodynamic Supportive Psychotherapy, this modification was found to be as effective as medication for mild to moderate unipolar depression.

Medication

There are several types of antidepressant medications used to treat unipolar depression. To find the most effective antidepressant medication with tolerable or fewest side effects, the dosages can be adjusted, and, if necessary, combinations of different classes of antidepressants can be tried. Response rates to the first antidepressant administered range from 50 to 75%, and it can take at least 6–8 weeks from the start of medication to remission [5]. Antidepressant medication treatment is usually continued for 16–20 weeks after remission, to minimize the chance of recurrence [12]. People with chronic depression may need to take medication indefinitely to avoid relapse.

Selective SSRIs, such as sertraline, escitalopram, fluoxetine, paroxetine, and citalopram are the primary medications prescribed owing to their effectiveness, relatively mild side effects, and because they are less toxic in overdose than other antidepressants [5]. Patients who do not respond to one SSRI can be switched to another and this results in improvement in almost 50% of cases. Another option is to switch to the atypical antidepressant bupropion [14].

Tricyclic antidepressants have more side effects than SSRIs and are usually reserved for the treatment of inpatients, for whom the tricyclic antidepressant amitriptyline, in particular, appears to be more effective.

Monoamine oxidase inhibitors, an older class of antidepressants, have been plagued by potentially life-threatening dietary and drug interactions. They are still used only rarely, although newer and better tolerated agents of this class have been developed.

Electroconvulsive Therapy

Electroconvulsive Therapy is a treatment that causes a seizure by means of an electrical current. Hospital psychiatrists may recommend electroconvulsive therapy for cases of severe major depression which have not responded to antidepressant medication or, less often, psychotherapy or supportive interventions. Electroconvulsive therapy can have a quicker effect than antidepressant therapy and thus may be the treatment of choice in emergencies such as catatonic depression where the patient has stopped

eating and drinking, or where a patient is severely suicidal. Electroconvulsive therapy is probably more effective than pharmacotherapy for depression in the immediate short-term, although a landmark community-based study found much lower remission rates in routine practice.

Prognosis

Major depressive episodes often resolve over time whether or not they are treated. Outpatients on a waiting list show a 10–15% reduction in symptoms within a few months, with approximately 20% no longer meeting the full criteria for a depressive disorder [11]. General population studies indicate around half those who have a unipolar depressive episode (whether treated or not) recover and remain well, while 35% will have at least one more, and around 15% experience chronic recurrence. Recurrence is more likely if symptoms have not fully resolved with treatment. Current guidelines recommend continuing antidepressants for 4–6 months after remission to prevent relapse. Evidence from many randomized controlled trials indicates continuing antidepressant medications after recovery and can reduce the chance of relapse by 70% (41% on placebo vs. 18% on antidepressant). The preventive effect probably lasts for at least the first 36 months of use.

Relevance to Childhood Development

Twenty years ago depression in children was almost unknown. Now the fastest rate of increase in depression is among young people. Recent studies show that the diagnosis of the prevalence at 1–2% in children aged 6–12 years and 2–5% in those aged 13–18 [13]. Pediatric depression is marked by low mood, anhedonia, disagreeability/defiance, pessimism, morbid thoughts and somatic symptoms, such as stomach upsets and headaches. There are evident sex-differences in susceptibility with an almost equal gender ratio pre-puberty switching to a female preponderance in adolescence. The clinical picture is somewhat similar to adult-onset depression although differing neurobiological markers and responses to treatment suggest that the etiology underlying the two may not be the same.

Features

Episodes of depression in children appear to last 6–9 months on average but in some children they may last for years at a time. The symptoms of depression in young children may vary from that in adults in severity and duration but are much the same as those of adults. They may also display an irritable rather than a depressed mood and show varying symptoms depending on age and situation. Most exhibit a loss of interest in school and a decline in academic performance. They may be described as clingy, demanding, dependent, or insecure. Diagnosis may be delayed or missed when symptoms are interpreted as normal moodiness.

Treatment

There are two main groups of treatments for the depressed child with demonstrated evidence of efficacy: psychotherapy and pharmacotherapy. Recent guidelines advise that the first-line treatment for children and adolescents presenting with moderate to severe depression is 4–6 sessions of psychological therapy. The two specific psychotherapies which show efficacy in children and/or adolescents are CBT and IPT. If they fail to respond to such therapy then they should be prescribed antidepressants in conjunction with psychological therapy. At present fluoxetine is the only antidepressant recommended for patients under the age of 18 years.

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United Nations Children's Fund (UNICEF)

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Universal Nonverbal Intelligence Test

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Synonyms

Intelligence testing without verbal communication

Definition

The Universal Test of Nonverbal Intelligence (UNIT) is a test designed for children and adolescents (ages 5:0 to 17:11). This cognitive measure is a useful alternative to traditional measures that involve verbal and language material. The UNIT provides a comprehensive assessment of nonverbal intelligence.

Description

The following information is taken from the UNIT Examiner's Manual [1].

Organization of the UNIT

The UNIT is made up of six subtests. These subtests include: Symbolic Memory, Spatial Memory, Object Memory, Cube Design, Analogic Reasoning, and Mazes.

During the Symbolic Memory subtest, the examinee is shown a sequence of universal symbols (baby, girl, boy, woman, man in either green or black) for 5 s. After the 5 s, the stimulus is removed and the examinee uses the symbolic memory response cards to re-create the stimulus. This subtest measures short-term visual memory and complex sequential memory.

The Spatial Memory subtest displays patterns of green, black, or green and black dots on a grid for 5 s. The examinee then recreates the pattern with chips after the stimulus is removed. This subtest measures short-term visual memory for abstract material.

In the Object Memory subtest the examinee is shown a random pictorial selection of common items for 5 s. Once the stimulus is removed, the examinee is shown a second stimulus with the same objects and additional items. The examinee is asked to identify the objects from the first stimulus by placing a chip on the recognized items. This subtest measures short-term recognition and recall of significant symbolic material.

During the Cube Design subtest, the examinee is shown and asked to construct abstract, geometric designs using cubes with two colors. This subtest measures visual-spatial reasoning.

The Analogic Reasoning subtest requires the examinee to point to the missing component out of four possible responses in a matrix design. The matrices are composed of common objects and novel geometric figures. This subtest measures symbolic reasoning.

In the Mazes subtest, the examinee must complete a maze by making a route from the beginning of the maze to the appropriate endpoint without making any mistakes. The mazes become increasingly difficult. This test measures reasoning and planning skills.

Administration of the UNIT

There are three different administration options when using these subtests. The Abbreviated Battery consists of the Symbolic Memory and Cube Design subtests. It is mostly used as a screening measure of cognitive ability. Next, the Standard Battery is the most commonly used administration. It consists of the Symbolic Memory, Cube Design, Spatial Memory, and Analogic Reasoning subtests. Last, the Extended Battery includes the Standard Battery plus the Object Memory and Mazes subtests. It is beneficial for providing more detailed diagnostic information.

The administration of the UNIT requires unique hand and body gestures to convey the direction of the test in a nonverbal manner. Some of these gestures include: Head nodding to depict "yes," open-handed shrugging to convey "what is the answer?", and hand waving to explain that the examinee should choose from a series of answers. These hand and body gestures should be explained and demonstrated to the examinee prior to beginning the test.

Description of the UNIT Scales

The UNIT has four Quotient scales: Memory Quotient (MQ), Symbolic Quotient (SQ), Reasoning Quotient (RQ), and Nonsymbolic Quotient (NSQ). The scores of

the Quotient scales make up the Full Scale Intelligence Quotient (FSIQ).

The Memory Quotient (MQ) measures complex memory functioning. More specifically, this Quotient measures short-term recall and recognition of common and conceptual items. The Symbolic Quotient (SQ) assesses an individual's problem solving skills with common information in which the answers involve the processes of labeling, organizing, and categorizing information. The Reasoning Quotient (RQ) measures an individual's thinking and problem solving skills with known and unknown situations. In particular, the RQ explores an individual's ability to plan and comprehend relationships among abstract patterns. The Nonsymbolic Quotient (NSQ) assesses problem solving skills with conceptual non-meaningful information. The Full Scale Intelligence Quotient (FSIQ) provides an overall measure of nonverbal cognitive ability.

Relevance to Childhood Development

The UNIT is standardized on 2,100 children and adolescents between the ages of 5 years of age to 17 years and 11 months. The national standardization sample is representative of the variety of ethnicities in the United States including: White, African-American, Asian/Pacific Islander, Native American, Hispanic, and Other. The UNIT is also normed on typical children in General Education and several Special Education populations including children with Learning Disabilities, Speech and Language Impairments, Emotional Disturbance, Mental Retardation, Giftedness, and English as a second language.

During the development of the UNIT, various studies were conducted to determine the reliability and validity of test scores. Subscale scores ranged from a reliability of 0.87 for the Symbolic Quotient, 0.91 for the Nonsymbolic Quotient, and 0.93 for the Full Scale scores [3]. Internal validity of the UNIT was determined through intercorrelations of the four scales having consistent coefficients of 0.90 or above [1]. External validity was also noted through correlational studies that found both adequate concurrent and predictive validity for this test [3].

In an effort to ensure that the UNIT continues to be a reliable and valid measure, various aspects of this test should continue to be researched. In particular, the research should examine the predictive validity with varied populations [2].

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Unpleasant Event

▶Aversive Stimulus

Unpleasure Principle

▶Pleasure Principle

Untruthful

▶Dishonesty

Upchuck

▶Purging

Upper Spinal Cord

▶Brain Stem

Uppers

▶Stimulants

Urban Poverty

▶Inner City Poverty

Urinary Incontinence

►Bedwetting
►Enuresis

U-Shape Curve

►U-Shape Learning

U-Shape Development

►U-Shape Learning

U-Shape Framework

►U-Shape Learning

U-Shape Learning

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Synonyms

U-shape curve; U-shape development; U-shape framework; U-shaped behavioral growth

Definition

U-shape learning is a framework of development displayed by the appearance of a behavior or skill, the disappearance of the behavior or skill, and the reappearance of the behavior or skill.

Description

Early theories of child development viewed development as a linear progression of abilities that increase in complexity with age. A linear view of development is reflected in Jean Piaget's stages of cognitive development, behaviorist Burrhus Fredrick Skinner's view of learning as the accumulation of knowledge shaped by experience, and in the cultural-contextual view of Lev Vygotsky. However, a linear view of development provided a limited explanation of regressions and changes that occur in children's learning [2]. The theory of u-shaped learning was devised as a response to the limitations of stage-linked perspectives of cognitive development.

According to a u-shape framework, changes in behavior and learning are exhibited through three phases [13]. Children demonstrate the accurate use of a behavior or skill during Phase 1. Children exhibit a decline in the correct use of a behavior or skill during Phase 2. However, children display a resurgence of the accurate use of a behavior or skill during Phase 3. Data are collected at each time point. The data are graphed according to the percentage of accurate responses on one axis in relation to the participants' age along the other axis. Studying development using a u-shape framework provides the opportunity to investigate the underlying processes, the relationships, and the interactions between each phase and learning.

In the 1960s and the 1970s researchers investigated alternatives to the linear developmental perspectives to explain the changes in children's thinking. Interest into the u-shape curve peaked in 1978 with the workshop "U-Shape Behavioral Growth" hosted by Tel-Aviv University in coordination with the Massachusetts Institute of Technology and held in Tel-Aviv, Israel. The conference explored u-shaped learning in the domains of scientific reasoning, language acquisition, creativity, facial perception, and social cognition. In 1982, the book *U-shaped Behavioral Growth* edited by Sidney Strauss with Ruth Stavy, was published. The book presented the outcomes from the Tel-Aviv conference.

As indicated from the outcomes of the conference, the u-shape curve was used as a framework to support theories of representational reorganization to describe patterns of learning and behavior. Studies applied the u-shape curve to describe short-term and long-term changes in knowledge. Strauss [13] described short-term term changes in learning and behavior as bursts of performance instability. The fluctuation in performance occurred as knowledge transitioned between domains. Task accuracy resumed and performance stabilized once the new representation system was formed.

Stavy et al. [12] used the u-shape curve to portray the integration of intuitive knowledge with the application of rules to complete a task. Children were found to apply rules from one representational system to another. Also, children unraveled and selected the necessary rules needed

to solve the problem accurately. The initial phase of learning was gained through experience and reflected an intuitive understanding of the task. Often children completed tasks accurately without understanding the conceptual underpinnings. During the second phase, children acquired the rules to complete the task. However, children's performance declined as they applied new rules. By the third phase, children were able to sort the rules according to their functions. Accuracy in task performance resumed as the children selected the appropriate rules from their repertoire to complete the task. This suggested that children resolved conflicts between intuitive knowledge and new information as part of the learning process.

Studies were conducted to determine if a u-shape curve was a result of conflicts between representational systems. This viewpoint suggested that the rise and fall of performance occurred through process to determine the appropriate over-riding system. Accurate performance resumed once the appropriate system gained dominance [13].

Also, a nativist perspective of development used the u-shape curve framework to investigate changes in learning. The nativist stance suggested that development moves from a general domain of knowledge to specific representations. Learning is acquired through the confirmation or the rejecting of a hypothesis. The transitions from general to specific forms of knowledge lead to errors in skills. Awareness of the transitional states would provide insight into optimal periods for learning [7, 13].

Early critics suggested that a u-shape curve did not contribute new information to studies into child development. Richards and Siegler [10] suggested that findings within a u-shape curve reflected children's interactions with the demands of a task rather than fluctuations in cognitive development. Klar [5] provided a similar criticism indicating that a u-shape pattern in development was an artifact of the task or measure.

Interest into u-shape learning declined in the 1980s. Researchers investigating children's language acquisition continued to apply a u-shape curve. The curve was useful in explaining children's acquisition of regular and irregular verb tenses [9, 11].

Developmental psychologists showed renewed interest into the u-shape behavioral curve in the mid 1990s. In 2004, the *Journal of Cognition and Development* dedicated an entire issue to u-shaped development. The three studies presented in the issue applied the u-shape curve to investigate the general underlying processes that affected changes in learning and behavior. Overall, the studies suggested that the rise and fall of performance reflected improvements in domain-general processes [1, 11]. Each of the studies published in the issue presented different perspectives as to how the changes occurred.

Gershkoff-Stowe and Thelen [3] investigated changes in infant stepping, reaching, and in early object naming. The authors concluded that changes in learning and behavior are comprised of multiple internal and external factors that are reconfigured and shape learning. Greshkoff-Stowe and Thelen indicated that the use of a u-shape framework provided opportunities to explore the basis of the processes of development.

Cashon and Cohen [1] explored the processing of upright and inverted faces by infants between 3 and 7 months of age. The study utilized an information processing perspective within the u-shape framework. The results from the study indicated that changes in the processing of facial features occur between the ages of 3–7 months. The findings suggested that the processing of upright faces followed an n-shape function. However, the infants' recognition of inverted faces followed an inverted u-shape curve. Infants at 3 months of age processed the individual features of a face. The authors suggested that infants approximately 4 months of age begin to integrate the features of upright and inverted faces. Yet, infants approximately 6 months of age revert to processing the individual features of a face. Infants 7 months of age appear to have resumed the skills to integrate the features of upright and inverted faces. The authors suggested that the changes in processing facial features were indicative of improvements in general-domain processes. Though changes in facial processing were discussed in relation to a u-shape curve, Cashon and Cohen [1] indicated that use of a u-shaped or an n-shaped function might create confusion rather than aid in the explanation of development.

Namy et al. [8] conducted a study that investigated the use of iconic and arbitrary gestures to support symbol learning and symbol-to-referent mapping in children 18 months, 26 months, and 4 years of age. The results indicated that children 18 months of age were able to use both arbitrary and iconic gestures to support symbolic learning. However, children at 26 months declined in ability to map unrelated gestures to a referent in order to support symbolic learning. Children by 4 years of age exhibited a resurgence of the skills to map iconic and arbitrary gestures to support symbolic learning. The authors proposed that the decline in linking arbitrary gestures in 26 month-olds was due to an increase in awareness of connections between iconic gestures to a referent in order to learn new information. The ability of using arbitrary and iconic gestures to support symbolic learning returned at 4 years of age

and possibly reflected an increase in linguistic skills. Namy et al. suggested that the use of a u-shape behavioral curve to display arbitrary gesture gave insight into the shift of children's understanding of symbols.

As in the 1980s, researchers continued to question the methodology of the u-shape framework. For example, Karmiloff-Smith [4] suggested that u-shape development focuses on the mastery of a behavior. The focus on performance outcomes provided a narrow perspective regarding the multiple factors that influence learning. Marcus [6] proposed that a u-shape behavioral curve might reflect measurement error. Marcus suggested that the display of a u-shape curve would need to be considered as an independent event. According to Marcus, empirical studies that can be replicated need to occur to investigate the soundness of a u-shaped development framework.

The u-shape developmental framework provided an alternative to a traditional linear view of child development. As indicated by Strauss [13], "U-curves can be used as a springboard for considering epistemological issues" that are relevant to understanding behavior, learning, and development.

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U-Shaped Behavioral Growth

►U-Shape Learning

Uterus

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Synonyms

Womb

Definition

The uterus is the major female reproductive organ. The medical term uterus is the Latin word for *womb*.

Description

The uterus is a pear-shaped, muscular organ that is divided anatomically into four segments: The *fundus*, *corpus*, *internal os* and the *cervix* [1]. At the top of the uterus are the *fallopian tubes* and *ovaries*. Together with the *vagina*, *ovaries* and *fallopian tubes*, the uterus is a part of the *female reproductive system* [1]. When a woman is pregnant, the *fetus* is nourished by and grows inside the uterus until it is born [3].

Relevance to Childhood Development

In prenatal development, once an egg is released by the ovary, it passes into the fallopian tube, where fertilization may occur within the first 3 days following *ovulation* [1]. If fertilization occurs, the fertilized egg, or *zygote*, travels down the remainder of the fallopian tube while undergoing cell divisions. Once the zygote reaches the uterus (about 1 week following conception), it contains multiple layers of cells that are beginning to differentiate, called a *blastocyst*. The blastocyst implants itself into the *endometrium*, or lining of the uterine wall. The inner layer of the blastocyst becomes the *embryo*. The outer layer of the blastocyst

develops into the *placenta*, *umbilical cord* and *amniotic sac*. The uterus continues to house and nourish the embryo, and later the fetus, until the birth of the baby [2].

If the egg is not fertilized, the endometrium and the unfertilized egg are discharged from the uterus through the vagina in a process called *menstruation* [2].

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V

VADPRS

►Vanderbilt Parent Assessment Scales

Validity

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Synonyms

Accuracy; Appropriateness; Fidelity

Definition

Historically, validity has referred to evidence that a psychological or educational test measures what it purports to measure. A more contemporary perspective holds that validity refers to sources of evidence that support the appropriateness and accuracy of uses, interpretations, and decisions that are based on test results. There are several different methods of establishing validity with evidence gathered through a gradual accumulation of research and clinical findings.

Description

Just as reliability is a characteristic of scores rather than a characteristic of tests, validity describes the uses, interpretations, and decisions made on the basis of test results, rather than describing an absolute property of the test itself [2]. The use and interpretation of a test and its results may be more appropriate and valid for some purposes than others. For example, using scores on a norm-referenced intelligence test may be highly valid for predicting educational achievement but of very limited validity for predicting social functioning.

Validation is the result of a gradual accumulation of evidence that suggests whether or not test scores can be used as meaningful indices of the construct of interest, and to make decisions or predictions on behalf of the test-taker. For published tests, preliminary evidence for validity should be provided in the test manual, but additional evidence is accumulated over time with additional research. Rather than dividing validity into separate types, the current conceptualization of validity considers three interrelated aspects of validity. Each of these aspects contributes to test users' understanding of whether a test score will tell them what they really want to know about the test-taker.

The first aspect of validity is content-related evidence (historically referred to as "content validity"). This source of evidence is typically considered and evaluated during the development of the test or assessment procedure, and reflects the extent to which test items address relevant content or skills. The underlying assumption of this aspect of validity is that the sample of test items should represent the purpose of the instrument and the construct or behavioral domain that the test purports to measure. Further, the test items should emphasize the most important and most relevant content, and should constitute a "representative sample" of all possible items that could be used to assess the domain of interest.

Evidence that demonstrates content-related validity is often established through the test specification method. This method involves developing a table of specifications (or test blueprint) in order to precisely identify the objectives of the test and relevant content. These objectives then determine the specific items of the test based on the content and skills that need to be assessed. Another method commonly used to establish validity evidence is expert review, which involves consulting with experts in the construct of interest. These experts might examine the test items and provide the test developers with feedback regarding the adequacy of items. This feedback may lead the test developers to generate additional items (if the initial items do not constitute an adequate sample), revise items to improve relevance or wording, or eliminate items to reduce redundancy. When expert review is used, the test manual typically describes how many experts were consulted, how they were selected, and the basis for their expertise.

The second aspect of validity is construct-related evidence (historically referred to as "construct validity").

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This aspect of validity involves providing evidence that performance on the test can be interpreted as a meaningful measure of the construct of interest (as opposed to other constructs). Because most of the constructs of interest in psychology and education are not directly observable (e.g., intelligence, self-esteem, attitudes), we must infer these characteristics on the basis of test scores or performances.

Two of the most commonly used methods of establishing evidence for construct-related validity are convergent and discriminant studies. Convergent studies involve correlating scores on different measures of the *same* construct with one another. For example, if a researcher was developing a depression scale, she would administer her new scale and an established depression measure to the same group of people, and correlate the scores on these two scales. In this case, the researcher would desire high correlation coefficients, which would indicate performance on her new scale is strongly related to performance on the established measure (i.e., the inference is that both tests are assessing the same construct: depression). At the same time, we would not expect extremely high coefficients or perfect relationships, as these would negate the need for the new test (unless it is shorter or easier to administer than established tests).

Discriminant studies, on the other hand, involve correlating scores on different measures of *different* constructs. Continuing with the previous example, the researcher would now administer her new depression scale and a measure of a different construct, such as anxiety, to the same group of people and then correlate the scores on these two scales. In this case, the researcher would want to see lower correlation coefficients, which would indicate a weak relationship between scores on these tests (i.e., the inference is that the new test is measuring something other than anxiety). In psychology and education, constructs are often correlated with one another to some extent (e.g., depression and anxiety, intelligence and academic achievement), so this researcher would not expect a coefficient of 0.0 between depression scores and anxiety scores; rather, she would look for a pattern in which convergent correlations are higher than discriminant correlations.

In sum, in order to provide evidence of construct-related validity, test developers attempt to show that test scores are highly correlated with scores on similar tests and weakly correlated with scores on dissimilar tests. Exploratory and confirmatory factor analytic methods also are sometimes used to establish construct-related validity evidence. These analyses help to understand the relationships among the items on a test in order to facilitate the creation of subscales and to determine whether items group together in a manner consistent with theory, logic, or prior hypotheses.

The third aspect of validity covered here is criterion-related evidence (sometimes referred to as "diagnostic validity" or "clinical validity"). This aspect of validity is concerned with the extent to which performance on the test is related to some pertinent external variable or outcome (called a "criterion variable"). Thus, gathering criterion-related evidence involves correlating scores on the test or procedure with performance on the criterion measure. This sort of evidence is often gained through concurrent and predictive studies.

Concurrent validity studies examine how well performance on a test or procedure estimates *current* performance on a criterion variable; scores on the test and criterion variable are therefore obtained at approximately the same time. For example, a test developer might correlate scores on a newly developed math reasoning test with current grades in math. A high correlation coefficient would suggest that the math reasoning test is a good indicator of current math achievement.

Predictive validity studies examine how well performance on a test or procedure predicts *future* performance on a criterion variable; scores on the criterion variable are therefore obtained at some later time. For example, predictive validity of scores on scholastic aptitude tests such as the SAT and ACT (which are designed to predict performance in college) might be examined by correlating test scores with criterion variables obtained later, such as GPA at the end of the freshman year or upon college completion. High correlation coefficients would indicate that these test scores are related to important outcome variables, thereby supporting the use of these tests in college admissions.

By considering these methods of concurrent and predictive validation, it becomes apparent that criterion-related validity evidence is directly related to the decisions practitioners and researchers make on the basis of test scores (these decisions are often categorized into true positives, true negatives, false positives, and false negatives, based on whether the test scores contribute to accurate descriptions or predictions). For example, if test performance will be used as part of clinical or educational decision making (e.g., diagnosis, placement in special education), the test user should have evidence that test scores are related to these criterion variables of interest (i.e., concurrent validity evidence). Similarly, if test performance will be used to make predictions about outcomes such as psychological functioning, educational achievement, or occupational success, the test user should have evidence that test scores are actually related to these outcomes (i.e., predictive validity evidence).

The three broad aspects of validity discussed here are influenced by numerous factors, which may be seen as forces that limit the validity of test results and the decisions made on the basis of those results. A few of these factors include: inappropriate vocabulary (e.g., unfamiliar or unnecessarily complex terms, which may limit examinees' ability to respond to the items), unclear or ambiguous directions (e.g., directions that are confusing and do not clearly indicate how the examinee should respond to the task or items), too few items (e.g., the items do not provide a representative sample of the domain of interest, which confines the interpretations users can make from the results), and changes to standardized administration procedures (e.g., with norm-referenced tests, any departure from standardized procedures reduces the validity of the results).

The framework presented here, which includes the three traditional aspects of validity, captures most of the sources of validity evidence proposed by the seminal *Standards for Educational and Psychological Testing* (prepared jointly by the American Educational Research Association, American Psychological Association, & National Council on Measurement in Education [1]), including evidence based on test content (content-related validity evidence), internal structure (construct-related validity evidence), and relations to other variables (construct-related and criterion-related validity evidence). An additional source of evidence proposed by the *Standards* is evidence based on response processes. This source of evidence is often considered by investigating examinees' item responses and asking them what kinds of strategies or processes they used as they approached the tasks, or by observing examinees as they complete testing procedures. This information can provide test developers with evidence that the tasks are related to the constructs or processes they are trying to measure (and unrelated to irrelevant constructs or processes) and can provide support for anticipated interpretations of test performance. As an example, researchers who are interested in developing a test of mathematics achievement for children might observe examinees as they complete the different sections and then question the strategies they used as they approached the items. Through these observations and interviews, the researchers may discover that children struggled with some of the word problems because they were not familiar with some of the terms used. Thus, performance on certain sections of the math achievement test was influenced by vocabulary and reading comprehension variables rather than math achievement, leading the researchers to revise the vocabulary used in the word problems.

See Wright [3] for discussion of how test bias and fairness are related to validity, including how statistical procedures such as cross-validation and differential item functioning can be used to examine bias. A test or procedure that produces biased or unfair results likely will not lead to valid interpretations or decisions.

Relevance to Childhood Development

Standardized psychological and educational tests or procedures are often used for clinical decision making, instructional decision making, educational placement, and research purposes. In order to have confidence that the results of these procedures will lead to accurate predictions and appropriate interpretations, there should be adequate evidence of validity. Each aspect of validity (i.e., content-related, construct-related, criterion-related) can provide test users with distinct pieces of information that can either support or not support the use and interpretation of a particular test score. The more aspects of validity that have been examined, either in test manuals or in the research literature, the more confidence users have that the test results will help them reach accurate decisions and predictions.

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Valium

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Synonyms

Anti-anxiety medications; Benzodiazepines; Diazepam

Definition

An anxiolytic medication that is used to treat anxiety disorders.

Description

Valium or Diazepam has become one of the most prescribed anxiolytic medications since its introduction [1].

Valium is one of the benzodiazepine medications that has been shown to be effective when compared to other types of sedative-hypnotics in the treatment of anxiety-related disorders [4]. Valium exerts its therapeutic effect at the neurotransmitter receptor sites by changing biochemistry of gamma-aminobutyric acid (GABA) through prolonging chloride channel-opening, which increases the GABA-induced inhibition [3].

Because of its calming effects, Goldberg [2] noted that Valium is used frequently for both long-term management of anxiety-related disorders as well as treatment of sudden onset of panic and anxious symptoms. Other symptoms that are treated with this medication include acute alcohol withdrawal, skeletal muscle spasm, cerebral palsy spasticity, and disorders of convulsion. Studies have found that the most frequent side effects of Valium include drowsiness, dizziness, and unsteadiness. It should be noted that the use of alcohol may depress the central nervous system (CNS); therefore, alcohol should be avoided while a patient is on Valium. Furthermore, psychotropic medications, anticonvulsants, and antihistamines may yield additive CNS depressive effects to the patient [5].

Because Valium is absorbed quickly via oral ingestion and travels to the brain promptly, anxiety symptoms are alleviated immediately [5]. Valium should not be discontinued suddenly without consulting with the prescribing physician. Withdrawal symptoms such as convulsions, tremor, and muscle cramps are commonly reported after abrupt withdrawal of the medication [2]. Withdrawal symptoms often occur when large quantities or long-term used of Valium are indicated. Additionally, dependency on Valium increases with age, level of anxiety disorders, dosage, and patterns of drug uses [8]. Finally, a person's functional skills, such as driving and operating equipment, might be affected; this is a potentially deadly benzodiazepine-related side effect [7]. In general, individuals without history of substance or alcohol abuse are able to take Valium as prescribed without any difficulties [6].

Regarding dosage of Valium, the management of anxiety-related disorders, skeletal muscle spasm, and convulsive disorders typically require a dose of 2–10 mg, taken two to four times a day. The generic versions of Valium tablets are available in different formats and various sizes depending on the drug company.

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Valrelease

▶Diazepam

Values

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Definition

Values are normally thought of as prized beliefs which form one of the key motivational elements most often employed to explain human actions, emotions, and thoughts. The formation of values begins during the earliest periods of life and the adaptive potential for maintaining existing values, adopting new values, and modifying existing values is theoretically present throughout the human lifespan. It is possible to think of values developing at a personal (individual or micro) level or at a cultural (societal or macro) level. Debate continues in two major areas: which values to teach and how to teach values.

Rokeach [7] defined a "value" as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (p. 5). This author offered a line of research that provided an operational definition for values and values systems in the form of a survey measurement instrument and data analyses to understand the political change process.

Numerous other research attempts have been made to scientifically study values.

Description

Values at the personal level are often inferred from behaviors and become part of one's personal identity. For example, if a child hoards pencils given out by the teacher in school and others might also need such pencils, many people are likely to think of such a student as a greedy child. What others say and believe about us often becomes incorporated into how we view ourselves. Of course, it is possible that such a child could employ defense mechanisms and reject this label of greediness and think of himself/herself as a kind, generous, and giving person. It is also possible to misinterpret values in that the child hoarding pencils might actually plan to save these items and offer them to classmates who need them in the future. The values that an individual subjectively perceives about self could be contrary to how others might characterize a person in value-laden terms. The ability to consistently act upon one's chosen or professed values is also a major challenge due to competing value and reward systems, speed with which decisions might have to be made, and social influences.

Much of the current research, theorizing, and applications regarding values and ▶moral development can be traced back to the work of the educational philosopher Dewey [1]. He highlighted the importance of the "hidden curriculum" in schools where classroom rules, student interaction, teacher actions, and school policies transmitted important attitudes regarding acceptable or unacceptable behaviors such as persistence, helping others, stealing, and cheating.

During the 1970s, an approach called "values clarification" became very popular with educators where situation-based dilemmas were used to help students better understand how values were involved in the decision making process (see [8]). Some values lend themselves best to personal choices such as musical tastes and clothing styles, while other circumstances might involve more difficult choices where harm could come to another person as a result of a specific decision. Therefore, some values involve moral issues while other values might not involve moral and ethical decisions. A values clarification approach can be useful in both situations because it is not the content of values that is being taught, but rather the process of values development based upon knowledge of options and rational decision making. Moral dilemmas ideally are best resolved if a person examines the roles process and end product could play in the decision making process. Kohlberg [6] offered a developmental stage theory of moral reasoning (6 stages) where cognitive maturity and social interaction could lead to advanced moral thinking and ideally higher level moral actions. While Kohlberg primarily focused upon justice themes in moral development, Gilligan [2] has added the importance of caring and concern themes in moral development. Kirschenbaum [5] offered a later attempt to merge values clarification and the focus upon character education into a more comprehensive approach to values education.

Two sequences (Stage 1: transmission of values and Stage 2: development of values) that incorporate the theories of Freud, Erikson, Kohlberg, and Gilligan have more recently been identified to describe values acquisition (see [3, 4]). Values can be directly transmitted to an individual from external sources such as societal institutions (schools, governmental laws/rules, religious organizations, clubs, etc.); parents; teachers; mass media; and peers through a reward/punishment system. The transmission approach uses socialization to impart values when human beings as children are young and inexperienced, yearn for acceptance, and are most vulnerable to social pressure. This implies that the same transmission medium as a process could promote healthy and unhealthy or socially acceptable and socially unacceptable values. The psychoanalytic theorists (Sigmund Freud and Neo-Freudians like Erik Erikson) refer to these lessons of childhood as identifications in order to highlight the fact that these values could be learned at both the conscious and unconscious levels.

The development of human values begins to crystallize around adolescence, but the antecedents of a person's personal set of lifetime adult values obviously begin in childhood. During late childhood, adolescence, and early adulthood a person has a chance to re-invent himself/herself by a thoughtful examination of values accumulated through the transmission approach in the form of childhood identifications and observational lessons. In other words, the socialization process has the initial powerful influence upon one's personality through the transmission approach, but as a person matures and leaves the confines of childhood a more personal and developmental process of values acquisition can come into play. This developmental process allows for the personalization of values needed for identity formation (see this entry for more details) and adaptation to a lifetime likely to be filled with dramatic scientific, technological, societal, and personal change. Values in the form of cultural traditions are therefore fairly resistant to changes by societal whims, trends, and fads, while at the same time malleable for longer-term adaptive and survival purposes. It seems

crucial to point out that some human beings never fully discover the possibility or importance of making conscious decisions regarding which childhood values to keep, modify, or discard. It is possible that some adults are living their lives based upon values transmitted to them in childhood without this critical review process. For most people it is inevitable that some personal crisis in life will challenge such a person to more carefully examine the strengths and weaknesses of transmitted values.

At the broader cultural level, values are often shared or rejected by members of groups and society as a whole. Values implied through behaviors are frequently employed as a condition of membership in order to distinguish members from non-members and are encouraged through rewards. Group membership normally implies that individuals share at least some values. Values tend to be more obscure than norms that are clearly stated and more measureable. Conflicting values as perceived within a group setting might be tolerable or may be the basis for dismissal, rejection, or persecution.

Relevance to Childhood Development

Many people would claim that the values established in childhood form the cornerstone of a healthy/unhealthy and productive/non-productive adult life. What is crucial to understand is that the values transmitted during childhood not only have a powerful influence upon the behaviors of adolescents and adults, but also that childhood is better thought of as a staging ground for the further development and refinement of values during adolescence and adulthood. The content of values is also critical, since it is possible for a person to be very devoted to and enthusiastic about values such as racial, ethnic, or religious hatred.

The topic of values is of great interest to politicians, business leaders, school personnel, religious leaders, parents, and others because changing values in cohort groups or across society means a potential re-directing of emphasis in society that could threaten established institutions and traditional belief systems. For example, the values promoted by the mass media in the form of entertainment or advertising or the Internet could quickly change the values of a society for better or worse and perhaps toward some of both outcomes. The renewed interest in character education and moral development has encouraged the further exploration of how values can contribute to the development of moral character in children and on into adulthood.

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Vanderbilt ADHD Diagnostic Parent Rating Scale

►Vanderbilt Parent Assessment Scales

Vanderbilt Attention-Deficit/Hyperactivity Disorder Diagnostic Teacher Rating Scale (VADTRS)

►Vanderbilt Teacher Assessment Scale

Vanderbilt Parent Assessment Scales

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Synonyms

VADPRS; Vanderbilt ADHD diagnostic parent rating scale; Vanderbilt parent rating scales

Definition

The VADPRS is a parent-completed rating scale that assesses symptoms of ►attention-deficit/hyperactivity disorder (ADHD) and common comorbid conditions in children.

Description

The VADPRS is a parent-completed rating scale that assesses symptoms of ADHD as well as related performance

in children between ages 6 and 12. The scale contains 55 items, takes approximately 10 min to complete, and has a third grade reading level. The scale contains all 18 criteria for ADHD from the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) (DSM-IV [1]), which includes nine symptoms of inattention, six symptoms of hyperactivity, and three symptoms of impulsivity. The VADPRS also contains 8 items measuring symptoms of ►oppositional defiant disorder, 12 items measuring symptoms of ►conduct disorder, and seven items that screen for anxiety and depression [2].

Parents rate the frequency of the symptoms on a four point scale, from "never" to "very often." A diagnosis of ADHD is given if enough scores of 2 or 3 are checked, based on the DSM-IV criteria for ADHD (1).

The VADPRS also contains an eight-item performance section, with 4 items examining academic performance (reading, mathematics, written expression, and overall academic performance), and four items examining relationships (peers, siblings, parents, and participation in organized activities). Parents rate each item on the performance section on a 5-point scale, from "problematic" to "above average [2]."

Relevance to Childhood Development

The VADPRS is used to facilitate the identification of some of the most common disorders of childhood. Psychometric evaluation of the VADPRS suggests that it has acceptable internal consistency and factor structure. The developers of the VADPRS suggest that it is a useful clinical tool to help evaluate ADHD in children, screen for common comorbid conditions, and assess school and relationship performance. Additionally, they suggest that the scale can be used as a time-efficient and cost-efficient research tool [2].

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Vanderbilt Parent Rating Scales

►Vanderbilt Parent Assessment Scales

Vanderbilt Teacher Assessment Scale

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Synonyms

NICHQ Vanderbilt assessment scale-TEACHER informant; Vanderbilt Attention-Deficit/ Hyperactivity Disorder Diagnostic Teacher Rating Scale (VADTRS); Vanderbilt teacher behavior evaluation scale; Vanderbilt teacher rating scale

Definition

The Vanderbilt Teacher Assessment Scale is a teacher-completed rating scale that can be used to assess the core and peripheral features of Attention-Deficit/Hyperactivity Disorder (ADHD) as outlined in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; DSM-IV; [2]).

Description

The Vanderbilt Attention-Deficit Hyperactivity Disorder Diagnostic Teacher Rating Scale (VADTRS; [3]) is a 43 item rating scale that is designed to obtain data from a child's teacher to assist in the diagnosis and treatment of ADHD. The scale is designed for use with children between the ages of 6 and 12. The VADTRS is available on the internet at no cost and is currently available in English and Spanish. The scale allows teachers to report the presence and severity of inattention, hyperactivity, and impulsivity displayed by a child in the school setting. The VADTRS items directly correspond to the DSM-IV [2] ADHD diagnostic criteria. The instructions provided on the scale direct the teacher to consider each rating in the context of age-appropriate behaviors for the student. There are nine items that assess Inattention and nine items assessing Hyperactive/Impulsive symptoms. The VADTRS also includes items that can be used to screen for coexisting conditions. There are 17 items that address oppositional/conduct and anxious/depressive behaviors. ADHD and comorbid symptoms are rated from Never (0) to Very Often (3). Symptoms are considered present, in regard to DSM-IV criteria, if they are rated as a 2 ("often") or 3 ("very often"). The teacher also rates 8 performance items on the VADTRS that relate to functional impairment in the academic and classroom behavior domains. The performance measures are rated

from Problematic (1) to Above Average (5). A rating of a 1 or 2 on one or more items in the performance section is considered to be indicative of impairment. The directions for the VADTRS indicate that a child must score a 2 or 3 on six or more items on the Inattentive scale and/or six or more items on the Hyperactive/Impulsive scale, as well as a 1 or 2 on one or more functional impairment items to meet the symptoms and impairment criteria for ADHD in the school setting. Three or more items scored as present for either the oppositional/conduct or the anxiety/depression scale indicate a positive screen for comorbid behavioral or emotional concerns. There is also a related follow-up scale that includes only ADHD and performance items to assist in evaluating treatment effects (NICHQ Vanderbilt Assessment Follow-up – TEACHER Informant).

The VADTRS and the Vanderbilt Attention-Deficit Hyperactivity Disorder Diagnostic Parent Rating Scale (VADPRS; [6]) are included in the *Caring for Children with ADHD: A Resource Toolkit for Clinicians*, a toolkit developed for pediatric health care providers by the American Academy of Pediatrics (AAP) and the National Initiative for Children's Healthcare Quality based on the AAP clinical practice guidelines for diagnosis and evaluation [1]. These guidelines include basing diagnoses on the criteria outlined in the DSM-IV [2], obtaining parent and teacher reports of ADHD-specific behaviors (via rating scales, interviews etc.), and screening for potential comorbidities.

Psychometric data for the VADTRS are available [3]. The original study examing the psychometric properties of the VADTRS included elementary-age children in Tennessee. The internal consistency reported for the Inattention (coefficient alpha=0.92), Hyperactivity/Impulsivity (coefficient alpha=0.90), Oppositional-Defiant/Conduct (coefficient alpha=0.87), Anxiety/Depression (coefficient alpha=0.80), Classroom Behavior Performance (coefficient alpha=0.94), and Academic Performance (coefficient alpha=0.95) scales appear adequate. In a multinational study, internal consistencies for Inattention ranged from 0.95 to 0.96, while the internal consistencies for Hyperactivity and Impulsivity items were calculated separately and ranged from 0.87 to 0.93 [4]. Wolraich et al. [3] used both exploratory and confirmatory factor analysis with two sets of data and suggested that both supported their proposed latent variable structure. In a second study, using confirmatory factor analysis, Wolraich, Lambert, Baumgaertel, Garcia-Tornel, Feurer, Bickman et al. [4] compared a one factor model (Inattention and Hyperactivity/Impulsivity together), a two factor model (Inattention and Hyperactivity/Impulsivity separately), and a three factor model (Inattention, Hyperactivity, and Impulsivity separately) across multinational samples. When all aspects were considered, data most strongly supported the two factor solution (Inattention and Hyperactivity/Impulsivity separately), suggesting that the author's proposed structure was appropriate. No test–retest reliability data have been reported for this instrument.

Relevance to Childhood Development

Rating scales are recommended as one tool that can be used in the assessment of ADHD for physicians, who most commonly diagnose this disorder [1]. These scales are an efficient and reliable way to obtain data from a child's teacher and have demonstrated a high level of consistency with other assessment methods, such as structured diagnostic interviews [5]. The VADTRS can assist clinicians in evaluating the *DSM-IV* criteria for ADHD, which requires the presence of symptoms in two settings, a set threshold of symptoms, and demonstrated functional impairment.

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Suggested Resources

The VADTRS, including the Spanish version, may be obtained at the following web address: http://www.vanderbiltchildrens.com/uploads/documents/SCHOOL_QUESTIONNAIRE-2.pdf

Additional information on the *ADHD: Caring for Children with ADHD: A Resource Toolkit for Clinicians* from the American Academy of Pediatrics, can be obtained at the following web address: http://www.aap.org/pubserv/adhdtoolkit/

Vanderbilt Teacher Behavior Evaluation Scale

►Vanderbilt Teacher Assessment Scale

Vanderbilt Teacher Rating Scale

►Vanderbilt Teacher Assessment Scale

Variables, in Experimental Developmental Research

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Synonyms

Dependent variables; Independent variables; Latent variables; Mediators; Moderators; Outcome variables; Predictor variables

Definition

Anything that is observed or measured in a scientific study can be considered a variable.

Description

A key component in all research designs, variables can be broadly conceptualized as being in two different classes: predictor, or independent, variables (often represented as *X*) and criterion, or dependent, variables (often represented as *Y*). Independent variables are what researchers either control or use to categorize their subjects, and dependent variables are the measurements taken to determine the effect the independent variable or variables had on the subjects in the study. It is important to note that variables represent different values or qualities of a property of the research subject.

Within this broad distinction, there are numerous ways to classify subcategories of variables. Some researchers, for example, prefer to distinguish between independent variables that can be truly manipulated or assigned and those which cannot (such as age or ethnicity), which are then often termed "subject variables." Modern psychometricians specializing in multivariate analyzes refer to any predictor variables which are indirectly measured as "latent variables." While some psychologists from a radical behaviorist standpoint often argue against the validity of such variables, latent or indirectly observed variables have a long history within psychological research; intelligence, for example, cannot be directly measured and can only be inferred through intelligence tests. Regardless, the key distinction between independent and dependent variables still stands.

Beyond the research perspective of independent vs. dependent variables, scientists also distinguish between discrete and continuous variables. Discrete variables have only a limited number of possible, mutually exclusive values whereas continuous variables have a large number (theoretically an infinite number) of values between the two extreme scores of a particular scale. The use of discrete and continuous variables influences the researchers' choice of statistical analysis in completing the research study. The number of variables also impacts the choice of inferential statistics, with simple one-variable designs requiring univariate statistics and more complex multiple-variable designs requiring multivariate statistics.

The relationships among different independent variables are also of practical and theoretical importance to researchers. Modern psychological research draws a distinction between "mediating" and "moderating" variables. Mediating variables are variables that intervene between the independent and dependent variables being studied, and moderating variables are variables that change the direction of or affect the strength of the relationship between the independent and dependent variables of interest. The differences between mediation and moderation may be subtle, and the proper identification of variables as mediating or moderating requires specialized statistical testing. The benefits of such identification include refinement of theory development and the testing of additional hypotheses on a more granular level.

Variables of primary interest to developmental researchers include age, gender, ethnic and racial backgrounds, birth order, intelligence, cognitive maturity, response latency, emotional functioning, behavior, and many others.

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Author's Note
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Venlafaxine

►Effexor®

Verbal Ability

►Verbal Intelligence

Verbal Abuse

►Emotional Abuse
►Psychological Abuse
►Psychological Maltreatment

Verbal Aptitude

►Verbal Intelligence

Verbal Communication

►Verbal Skills

Verbal Comprehension

►Verbal Intelligence

Verbal Intelligence

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Synonyms

Crystallized intelligence; Language-based reasoning; Verbal ability; Verbal aptitude; Verbal comprehension; Verbal IQ

Definition

Intelligence in the use and comprehension of language, including the ability to understand and profit from experience with language [40].

Description

In his theory of Multiple Intelligences, Howard Gardner identified Verbal-Linguistic intelligence as one of eight core intelligences along with logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal intrapersonal, and naturalistic intelligence. Gardner described Verbal-Linguistic intelligence as an individual's sensitivity to and facility with spoken and written language. High verbal-linguistic intelligence is associated with lexical knowledge, verbal memory, ability to understand and manipulate syntax and the capacity to utilize symbolic and abstract language. Linguistic ability is observed in an individual's ease in learning primary and secondary languages and capacity to use language effectively to accomplish certain goals such as expressing oneself rhetorically or in prose, learning via literacy skills, analyzing syntactic information, and persuading or instructing others [12, 13]. Gardner's assertion that multiple intelligences exist independently, rather than as subsets of general intellectual ability (aka "*g*") has been criticized based on the lack of validating studies [23, 34]. However, examination of the content of a variety of instruments which measure verbal abilities provides empirical support for the greater part of Gardner's definition of Verbal-Linguistic intelligence. Therefore, even if the conceptualization of Multiple Intelligences is rebuffed, one may find Gardner's definition useful as a pragmatic framework from which to view the functional expression of verbal intelligence.

The construct of verbal intelligence has indeed been widely supported in psychometric research. Verbal intelligence is typically evaluated as part of a broader assessment of cognitive abilities/IQ, although it may also be

evaluated through brief intelligence tests and specific language assessments. The reliability and validity of measures of verbal intelligence are typically supported by psychometric analyzes including normative statistics, reliability analysis (coefficient alpha, test–retest, alternate forms, etc.), correlational methods examining convergent/divergent/predictive validity, and confirmatory/exploratory factor analytic methods to support construct and criterion validation. When compared with other measured dimensions of human intelligence such as nonverbal reasoning, speed of information processing, and memory, scales representing verbal intelligence tend to be the most psychometrically robust in regard to reliability (e.g., standard error of measurement) and contribution to general intelligence (i.e., amount of variance in "*g*" accounted for by verbal intelligence) [21].

The Cattell-Horn-Carroll (CHC) theory of cognitive abilities [21] is an empirically grounded, psychometric theory of intelligence. Many psychologists believe that CHC theory, which combines Cattell and Horn's Gf-Gc theory (i.e., general fluid and general crystallized intelligence) [5, 15] and Carroll's [4] three-stratum theory, provides the most comprehensive framework available for understanding the structure of human cognitive abilities [20]. The apex, Stratum III, represents the general level: general intellectual ability or "*g*". Stratum II, the broad level, is comprised of eight factors including fluid intelligence, crystallized intelligence, general memory and learning, broad visual perception, broad auditory perception, broad retrieval ability, broad cognitive speediness, and processing speed. The broad cognitive abilities subsume approximately 70 narrow cognitive abilities represented by Stratum I. Crystallized intelligence, which is associated with verbal intelligence, refers to knowledge and skills that are primarily influenced by environmental and sociocultural factors and is generally assessed through verbal skills [16]. For example, on the Woodcock Johnson-III Tests of Cognitive Abilities [39] the CHC cognitive factor (*Gc*) is entitled Comprehension-Knowledge and is comprised of two subtests: Verbal Comprehension which requires naming pictured objects, providing synonyms or antonyms, and solving verbal analogies, and General Information which requires answering questions presented orally. Together the subtests assess an individual's breadth and depth of knowledge of a culture, ability to communicate knowledge, and ability to reason using previously learned knowledge.

The Wechsler scales are commonly used for the assessment of general intellectual ability [35, 37]. The Wechsler Adult Intelligence Scale and Wechsler Intelligence Scale for Children reflect a four factor model of intelligence, where verbal intelligence is represented by the Verbal Comprehension Index (VCI). Although the Wechsler scales were not based on the CHC premise, the content of scales measuring verbal intelligence is consistent with the theoretical framework Crystallized intelligence (*Gc*). The VCI is a measure of general verbal skills, such as verbal fluency, ability to understand and use verbal reasoning, and verbal knowledge.

There are numerous instruments designed to assess multiple dimensions of verbal intelligence, many with similar content to the Woodcock Johnson-III Tests of Cognitive Abilities and Wechsler scales. These include the Stanford-Binet Intelligence Scales-fifth edition [29], the Differential Ability Scales – second edition (DAS-II, [11]), and the Kaufman Assessment Battery for Children, second edition (KABC-II, [17]). Yet, there are many children whose true verbal abilities may be under-represented by traditional assessments. These include children for whom an adequate assessment has not been standardized in their primary language, children who have limited experience with the dominant culture, those who are deaf, or those who suffer from a hearing impairment, speech and language disorders, neurological disorders, traumatic brain injury, language-related learning disabilities, autism, selective mutism or other neurological or mental disorders. In such cases, psychologists may choose to administer non-verbal assessments that provide insight into symbolic representation, a particular area of crystallized/verbal intelligence. Symbolic representation has been long recognized as the basis for human communication, with aural/oral language exchange being only one manifestation [10]. Tasks involving symbolic memory, learning, and reasoning skills draw upon an individual's cognitive skills in internal verbal mediation. Some nonverbal assessments, such as the (CTONI, [14]) and the Universal Nonverbal Intelligence Test (UNIT, [3]) allow for specific assessment of symbolic abilities and provide a standardized administration with no expressive or receptive language requirements on the part of the examinee. Based on the PASS (Planning, Attention, Simultaneous, Successive) Theory of Cognitive Processing [9], the Cognitive Assessment System [24], provides a unique purview into an individual's ability to process successive verbal information. On the CAS, Successive processing is defined as the means by which an individual "integrates stimuli in a specific order that forms a chain like progression" (p. 5) and is associated with the syntactic nature of language and the ability of one to derive meaning from it. The findings from such instruments can provide valuable but circumscribed information about discrete domains of verbal intelligence.

Relevance to Childhood Development

Perhaps the most important contribution of developmental psychologist Lev Vygotsky [33] was his theory on the relationship between language and thought. Vygotsky asserted that cognitive development potentiates from a dialectical process whereby a child learns through experiences with others and where language is the primary form of interaction. Language begins as an external, "interpsychological" tool for social exchange and becomes an "intrapsychological" tool which the child utilizes to makes sense of his/her world. This can be observed in a child's utilization of "private speech," a repetition of comments by others, which is often first expressed aloud and later becomes internalized/silent self-talk. As learning progresses, the child's own language comes to serve as her primary tool of intellectual adaptation, concept formation, and self-awareness. Eventually, children can use internal language to direct and regulate their own behavior, thoughts and emotions. Contemporary developmental theories have also supported the role of linguistic abilities in enriching development of interpersonal skills, emotional regulation, and executive cognitive functioning [1, 30, 32].

With the caveat that both are influenced by background, previous education, and cultural experiences, verbal ability is a good predictor of achievement orientation. Assessment of verbal abilities using psychometrically sound instruments can be a valuable tool in identifying preschoolers at-risk for academic and cognitive delays [19, 22]. In older children, lexical knowledge [8, 18], syntactic awareness [2, 7] and verbal working memory [6, 31] have been found to be related to basic literacy and spelling skills. Aggregate measures of verbal intelligence (i.e., Verbal IQ) have also been positively correlated with reading comprehension skills [25, 26]. Moreover, measured verbal intelligence has been found to be more strongly related to academic achievement measures of reading, mathematics, and written language than non-verbal measures [27, 28, 37].

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Verbal IQ

►Verbal Intelligence

Verbal Memory

Definition

Memory for words and other verbal information

Description

Evidence supports that most people process verbal information with the left side of their brain, and damage to this region of the brain can impair verbal processing and memory, as well as, speech. Further, some individuals are thought to have better verbal processing and memory skills, while other individuals may have better spatial skills. More specifically women tend to have superior verbal memory skills to men.

When assessing verbal memory it is important to compare it with spatial memory, in order to target more specific deficits or strengths and also detect damaged brain regions. Verbal memory can be assessed through neuropsychological testing; these tests include variations of remembering a long list of words or a short story. One of the most predominantly used neuropsychological tests for verbal memory is the California Verbal Learning Test (CVLT).

Verbal Rehearsal and Self-Statements

►Self-Talk

Verbal Skills

Synonyms

Communication skills; Expressive language; Language; Oral skills; Speaking; Speech; Spoken language; Verbal communication

Definition

The skills used to communicate one's knowledge orally.

Description

Effective use of verbal skills involves using intentional communication, comprised of several components and/or characteristics including vocalizations, vocabulary, grammar, syntax, fluency, word retrieval, and responsiveness to cues from the environment, to convey information and ideas to others.

Verbal skills are acquired through both environmental experience (e.g., modeling speech production of the primary caregiver and others in the immediate environment) and formal education. Measurement of verbal skills generally involves assessing an individual's ability to produce single word utterances, phrases, and sentences in responses to queries and prompts using oral and/or visual stimuli.

Vernacular

►Dialect

Very Low Birth Weight

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Synonyms

At risk infants; VLBW

Definition

Very low birth weight (VLBW) is defined as a birth weight of 1500 g or less in a liveborn infant.

Description

The primary causes of VLBW are premature birth (infants born before 37th week of gestation and often before the 30th week) and intrauterine growth restriction, which is usually due to problems with placenta, maternal health, or to birth defects. VLBW places the infants at higher risk of mortality and morbidity. Risk factors for VLBW are largely preventable. They include poor maternal nutrition, adolescent pregnancy, use of alcohol and drugs, smoking, multiple births, and sexually transmitted diseases. Families from lower socioeconomic backgrounds are at the greatest risk of these factors [1, 2].

The national percentage of the VLBW infants oscillate around 1.2 and 1.4. The rate of VLBW babies is increasing, due mainly to the increase in prematurely-born multiple gestations, which is in part associated with introduction of modern reproductive techniques. The percentage of VLBW infants is greater in minority groups, particularly African-Americans. According to statistics, the percentage of African-American babies born with very low weight was three times that of Caucasian-American babies. Reasons for these demographic differences are complex and generally relate to socioeconomic status and biological differences between the two groups. For example, pregnant African-American females are more likely to receive poor prenatal care, face more psychosocial stress, and are at higher risk of teenage pregnancy. Other factors include biological differences in gestational length.

Relevance to Childhood Development

Children born with VLBW are at high risk of neonatal complications, which are negatively correlated with the weight of infants. Clinical problems associated with VLBW include hypothermia; hypoglycemia; aphnea; metabolic acidosis; hypoglycemia; perinatal asphyxia; respiratory problems, particularly the Respiratory Distress Syndrome and aphnea of prematurely; fluid and electrolyte imbalances, which increase risk of dehydration, fluid overload, hypernatremia, hyponatremia, hyperkalemia, hypocalcemia, hypermagnedemia; hyperbilirubinemia; anemia; impaired nutrition; infections; neurological problems, including intraventicular hemorrage, periventricular leukomalacia, and increased risks for cerebral palsy, developmental delay; ophthalmologic complications; hearing deficits; and sudden infant death syndrome [2, 4, 5].

VLBW is associated with higher than normal risk for long-term developmental and neurocognitive disorders and delays. VLBW infants are at higher risk for cerebral palsy, developmental delays, mental retardation, visual problems (including blindness), hearing impairments, other neurosensory disorders, and chronic lung disease. Moreover, these children are at higher risk of learning disabilities (particularly in math), psychosocial maladjustment, and academic difficulties. Children with VLBW often present impairments in the areas of visual-motor performance and visual-motor abilities, overall cognitive performance, and attention. Additionally, when attending school, children who were identified with VLBW are often reported to develop low self-perception of competency, struggle with learning, and present behavioral problems. Other life-long problems often include adult-onset diabetes, coronary heart disease, and high blood pressure [3, 5].

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Vicarious Learning

▶Observational Learning

Video Games

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Synonyms

Console games; PC games

Definition

An electronic game with video feedback where user input has consequences that affect the game environment.

Description

Video games were first introduced in 1972. The term video game has become synonymous with a wide range of electronic devices, software, and gaming experiences. The term is used as a reference for both hardware, for example, console games, and software, for example, individual game titles. Although the term video games is used to describe both objects and activities, the key characteristics are the electronic nature of the games and the presence of visual and auditory feedback.

The electronic components in video games introduce a wide array of possibilities when determining how the player interacts with a game. Electronic input devices accept player inputs which are then used to alter the game environment. Input devices range from simple gamepad controllers and keyboards to more specialized inputs like joysticks and steering wheels. The interaction among the player, the game interface, and the game environment, results in an overall gaming experience.

There are many characteristics associated with video games, but these characteristics are neither required nor do they fully define a video game. Characteristics like the presence of rules, generation of points, or competition are present in many video games but they are not all required. For most video games, however, competition is a significant portion of the experience. Competition may be in the form of other players as is the case in online games, or it may be in the form of predetermined standards like a score to attain or a time to beat. In these cases, winning is an important goal, but incremental progress is also very important in maintaining the behaviors associated with gaming. The attainments of sub-goals, or the steady increase in the mastery of requisite skills, are very reinforcing aspects of playing video games.

Improvements in technology have led to an increase in video game complexity and realism. In addition to delivering entertainment, modern video games are being used for specialized purposes. For example, the military has paired the teaching potential of video games and the increased realism afforded by modern technology to produce video games that are both recruitment and training tools. Recruitment and training tools like America's Army challenge the previous notion that video games are just for children [1].

Relevance to Childhood Development

Video games are quite pervasive in our culture as 92% of children ages 2–17 play them, with little more than two times more males than females playing. A third of these children have the games in their bedrooms. The amount of time that children spend playing video games ranges from about 20 to over 60 min per day. Generally, as children age, the amount of time spent playing increases with children ages 8–13 reporting the most playing time.

As video games, particularly violent video games, become more pervasive in the culture, they also become the focus of controversy. Researchers are currently examining the effects of violent video games on subsequent behavior of the game player. Despite what one may hear in the popular media, there are no data to suggest that playing violent video games causes aggressive or violent behavior in the game player. Although a number of studies suggest a link between playing violent video games and increased physical and verbal aggression, there is no definitive level of causality between the two. That is, one can not say that playing violent video games "causes" aggressive behavior [2, 3, 4].

There are many positive features of video games, particularly those whose aim is to teach academic skills, problem-solving skills, decision-making, and visual-motor coordination. In addition, playing video games is often a child's first introduction to computer literacy and may enhance their facility with computer-based technology. Some studies have found that playing video games improves spatial visualization and visual attention skills.

Perhaps the most serious consequence of playing video games is the time devoted to playing them. Approximately 25% of children admit that playing video games occasionally interferes with homework and other academic performance. When playing video games interferes with social interaction with friends, with school and other activities, and with family time, no matter what type of game is being played, then the negatives most likely outweigh the positive effects.

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Vigilance

►Attention Span

Vineland Adaptive Behavior Scale

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Synonyms

Adaptive Behaviour Scales

Definition

The Vineland Adaptive Behavior Scales (VABS) are an objective measure of adaptive behavior. Adaptive behavior refers to the individual's ability to undertake daily activities appropriate for their age group.

Description

The VABS are a revision of the Vineland Social Maturity Scale, which was developed in 1935 and revised in 1967 [2, 3]. The Vineland Social Maturity Scale was designed to provide an objective measure of adaptive behavior for use in evaluating individuals with mental retardation [2, 3]. Adaptive behavior was defined as "performance of the daily activities required for personal and social sufficiency" [5]. Three principles were associated with the definition: (1) adaptive behavior is age related, (2) adaptive behavior is defined by expectations or standards of other people, (3) adaptive behaviors are defined by typical performance not ability [5]. Levels of adaptive behavior and intelligence are compared when determining whether or not an individual should be classified as having mental retardation.

Published in 1984, the VABS is used to assess personal and social sufficiency for individuals from birth to adulthood, and may be used to asses an individual's daily functioning in a variety of clinical, educational and research settings [5]. The VABS may be used to prepare individual education and treatment programs, monitor progress, and evaluate the success of a program. The scales are also applicable for individuals with or without disability [5] and are valuable in determining the degree to which specific disabilities may affect daily functioning in individuals [5].

A major advantage of the scale is that it allows assessment of individuals who will not or cannot perform on command, such as infants and individuals with severe retardation, emotional, or physical disability. The VABS does not require the direct administration of tasks to an individual; rather it requires a respondent who is familiar with the individual's behavior. There are three versions of the VABS; each version is designed to measure adaptive functioning in the following four domains.

1. Communication which has three sub-domains; receptive, expressive, and written communications.
2. Daily living skills which has three sub-domains; personal, domestic, and community.
3. Socialization which has three sub-domains; interpersonal play, relationship play, and leisure time.
4. Motor skills which has two sub-domains; gross motor skills and fine motor skills.

These four domains and their sub-components are considered to accurately categorize the daily activities of most individuals [5]. There is an optional set of items which covers maladaptive behaviors; however, these questions can only be used with individuals 5 years and older. The motor skills domain is only administered to children without disability of 6 years or younger unless a motor skills deficit is suspected. The educational form is administered as a questionnaire and is completed by the teacher [5].

Forms

1. The survey form, which includes 297 items, is used to provide a general assessment of adaptive behavior and to give and indication of areas of strength and weakness. It may be used with individuals from birth to 18 years 11 months or for low functioning adults. The expanded form includes an additional 280 items which are presented to the primary caregiver of the individual in a semi-structured interview format (administration time = 20–60 min).
2. The expanded form, containing 577 items, 297 of which are from the survey form. This is a more comprehensive assessment of adaptive behavior and may be used to prepare an individual educational or treatment plan (administration time = 60–90 min).
3. The classroom edition: This form has 244 items taken from the other two forms, but which are related to basic academic functioning. This form is for use with students between the ages of 3 and 12 years 11 months (administration time = 20 min).

Administration

The VABS are designed to measure what the individual usually does, not what they are optimally able to do. Not all questions need to be administered as an approximate starting point for individuals without disability is indicated in the record booklet for each domain. Lower starting points may be necessary for individuals with suspected deficits and are based on the best estimate of mental or social age, and are derived from previous data or information from the primary caregiver. By this means, not all items are required to be administered as basal points are established for each domain.

Scoring

Each item can receive a score of 2, 1, or 0. A score of 2 indicates yes or usually, 1 sometimes or partially and 0 indicates no or never. No opportunity and don't know can be given as a response and are counted as a 1. An adaptive behavior composite score is generated with a mean of 100 and standard deviation (SD) of 15. Percentile ranks, stanines, adaptive levels and age equivalents can be calculated from tables in the manual. In addition, for each of the sub-domains an adaptive level and age equivalent may be determined. With the survey and expanded form, a percentile rank may be obtained for adaptive behavior composite and for the domains which indicate how the individual with a disability rates relative to other individuals with a similar disability. The scores may be plotted in a standard score profile.

The maladaptive domain on the survey and expanded form indicates whether the level of maladaptive behavior is significant or non significant compared with individuals of the same age or with the same disability.

Relevance to Childhood Development

Mental retardation is considered to be a disorder first diagnosed in childhood [1] and can be caused by a diverse range of factors including Down syndrome, heredity factors or traumatic brain injury [1]. Approximately 1% of the population are affected by mental retardation and these individuals are vulnerable to exploitation and abuse (i.e., physical or sexual) [1]. To ensure the best outcomes for individuals with mental retardation requires optimal environmental inputs. But to target these interventions requires a reliable method of identification. Prior to 1960 a diagnosis of mental retardation only required a score one or more SD below the mean on a test of intellectual ability. However, this cut off was found to be too inclusive and disadvantaged minority group members. Later a cut off of two SD was used but this still tended to included a disproportionate number of minority group members [4]. Therefore, deficits in adaptive behavior as well as deficits in intellectual functioning are now required for a diagnosis of intellectual retardation. The current diagnostic criteria in the DSM-IV-TR [1] states that the individual must have a significantly sub average intellectual functioning (i.e., <70) and concurrent deficits in adaptive functioning (as measured by scales such as the VABS) with onset prior to age 18 years.

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Violence

►Aggression
►Physical Aggression

Visual Amnesia

►Agnosia

Visual Area

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Synonyms

Primary visual cortex

Definition

The visual area of the brain, also known as the primary visual cortex, is a portion of the occipital lobe and is the site at which visual information is processed.

Description

The visual area of the brain is housed within the occipital lobe of the brain, which is the smallest and most posterior lobe of the cerebral hemispheres. More commonly referred to as the primary visual cortex, the visual area of the brain represents the region of the cortex where visual information is initially processed prior to being transmitted anteriorly for additional processing [3]. While all visual information is eventually received here, it is first transmitted through specific nuclei of the thalamus. Specifically, the lateral geniculate, pulvinar, and lateral posterior nuclei of the thalamus initially receive different forms visual information and then relay it onto the visual area [1]. Upon being received, the nature of the visual information determines how it is processed by the visual area. All information is received by the two areas that largely make-up the primary visual cortex, sometimes labeled as V1 and V2 for visual area 1 and visual area 2. Beyond this, information is sorted by whether the information is related to object recognition or visual action [2]. That information related to object recognition is sent via the ventral stream for further processing and that information corresponding to visual action is sent via the dorsal stream for further processing [2]. Again, while areas V1 and V2 enact influence on both streams, the remaining areas do not necessarily do the same. Area V3 is the only other area that has feeds to both the ventral and dorsal streams. In regards to the prior, V3 assists in the processing of elements of dynamic form while for the latter it assists in the processing of elements related to more general form processing [2]. In comparison, V4 solely operates within the ventral stream and serves to assist in recognition of color form whereas V5 operates almost exclusively within the dorsal stream assisting the processing of motion [2].

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Visual Attention

►Visual Scanning

Visual Persistence

►Iconic Memory

Visual Scanning

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Synonyms

Visual attention; Visual search

Definition

The pattern of eye movements used to examine a given person, image, or object.

Description

Visual scanning refers to the pattern of fixations and saccades while an individual is examining visual stimuli. Scanning is first rather disorganized in infants, then becomes more exploratory but fairly limited, and finally develops into controlled, goal-directed behavior. In older children and adults, scanning emerges as more sophisticated visual search skills and is part of a larger set of selective attention abilities.

Relevance to Childhood Development

Visual scanning rapidly develops during infancy. Eyesight is less developed at birth in comparison to other senses, such as hearing. Scanning patterns are somewhat disorganized at birth, but by approximately 1 month, infants attend to the outer edges of a visual stimulus, such as a pattern or face, but do not explore the inner areas of the stimulus until several weeks later [9, 16]. Infants as old as 12 weeks still tend to fixate on a specific region along the periphery, a corner for example, and do not vary their search over multiple aspects of the pattern [12]. As scanning ability develops, infants expand their examination and explore different features of visual stimuli [2]. Visual scanning finally matures as a controlled, goal-directed behavior [3].

Visual scanning is not entirely dependent on physical or cognitive development. Characteristics of visual stimuli also affect infants' scanning behaviors. Brightness, familiarity with an object, texture, and motion all partially

determine the attractiveness of an object and the ensuing visual scanning behaviors (e.g., [4]). Motion in particular seems to attract infants' attention. Due to the attractive qualities of certain objects, we can see a link between visual skills and other areas of development. Infants' first words often refer to important objects (i.e., mother or father) or other objects they have seen in motion [14].

Visual scanning is important for establishing human social interaction. Infants tend to gaze at their parent's face, exploring facial features and learning the synchronization of features, sounds, and expressions. The parent's mouth and eyes are perhaps most interesting to the infant [11]. While an infant scans, the parent speaks to the infant and engages in physical contact providing warmth and security. Through this close interaction with the parent, the foundations for speech and attachment are laid.

As children grow past infancy, visual scanning becomes integrated into the sophisticated ability to selectively attend to visual stimuli comprising multiple subskills, one of which is visual searching [6]. Visual searching results from the combination of orienting attention and filtering irrelevant information [15]. Some evidence suggests the basic perceptual processes that form the foundation of visual search are invariant from infancy into adulthood [8].

Developmental differences in visual search are clearly present after infancy. Visual search ability becomes faster and more accurate with age [13]. However, visual search abilities are taxed to a much greater degree in children than adults, even by small amounts of interference [10]. For example, children ages 5 and 6 require more time in visual search tasks than older children [18]. The presence of multiple moving stimuli also challenges children's visual search abilities. Younger children (6–8) have more difficulty than older children (10–12) when identifying and tracking a moving target surrounded by distracters, and experience even greater difficultly accurately tracking multiple moving targets [19].

Visual attention mediates the roles of experience and environment on brain maturation [5]. An example of this mediation is seen in the development of motor skills in young children; for example, walking. Learning to walk requires environmental affordances and development of brain structures responsible for motor skills. However, affordances and innate structures in the child are not sufficient. Environmental affordances must be visually perceived, then acted upon by the child (e.g., [17]). The ability to visually scan the environment supports the developing comprehension of shapes, textures, and depth cues. Experience with visual scanning also supports growth within the brain structures responsible for continued motor development.

Visual scanning abilities remain important after infancy, but the use of visual skills changes with development. Infants use visual scanning to learn about their environment, form social bonds, and develop motor skills. In childhood, visual skills are important in different domains. Academic and athletic activities, for example, rely heavily on visual skills (e.g., [7]). Certain forms of child injury also depend heavily on visual skill development [1]. Among adults, visual skills are employed each time an automobile is driven or a busy airport concourse is navigated. In short, our use of visual scanning persists across the lifespan.

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Visual Search

►Visual Scanning

Visually Impaired

►Blindness

Visual-Spatial Intelligence

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Synonyms

Non-verbal intelligence; Visuo-spatial intelligence

Definition

The capacity to perceive the visual world accurately, and/or perform transformations and modifications on perceptions, construct mental representations of visual information, and use the representations to perform activities is often considered visual-spatial intelligence [2, 3, 5].

Description

Some professionals have erroneously designated visual-spatial intelligence as one of Gardner's original seven multiple intelligences. These individuals are in fact referring to spatial intelligence. Gardner himself readily admits there is often a visual component to spatial intelligence. However, he differentiates between visual-spatial and spatial intelligence as he indicates other senses can be involved in spatial intelligence aside from sight. For instance, a blind individual, who has no access to the visual world, can develop spatial intelligence by utilizing the tactile modality of their perceptual system [3, 4]. Therefore, in relation to Gardner's theory on multiple intelligences, visual-spatial intelligence is a subcomponent of spatial intelligence.

Visual-spatial intelligence encompasses several abilities, including but not limited to, visual discrimination, recognition, projection, mental imagery, spatial reasoning, image manipulation, and the duplication of inner or external imagery [1]. This intelligence also involves the ability to think in three-dimensions [9], including constructing three-dimensional forms out of two-dimensional information [10]. Any or all of these visual-spatial abilities may be expressed by a single individual. Consequently, persons with well-developed visual-spatial intelligence do not all exhibit the same skills. Carpentry, architecture, engineering, interior design, mathematics, surgery, and aviation are some examples of careers involving visual-spatial abilities [1].

There are no standardized assessments designed to specifically measure visual-spatial intelligence per se. However, there are standardized assessments which measure cognitive abilities associated with visual-spatial intelligence. For instance, the *Woodcock-Johnson Tests of Cognitive Abilities*, Third Edition (WJ-III-COG) has factors based on the Cattell-Horn-Carroll theory of cognitive abilities, and one of these factors is visual-spatial thinking. Visual-spatial thinking is the ability to perceive, analyze, synthesize, and process visual patterns as well as the ability to store and recall visual information [8]. It is considered a broad ability, and can be broken down into four narrow abilities: visualization, spatial relations, visual memory, and spatial scanning [6]. The *Stanford-Binet*, Fifth Edition (SB-V) also evaluates visual-spatial abilities. Visual-spatial processing, one of the five factors on the SB-V, measures an individual's ability to perceive patterns, relationships, spatial orientations, or the gestalt whole among pieces in a visual display [7].

Development Implications

It is important to help children develop and/or hone their visual-spatial abilities because visual-spatial thinking is a basic avenue of obtaining, processing, and representing information [1]. Not to mention, abilities related to visual-spatial intelligence support academic pursuits in the areas of geography, biology, chemistry, mathematics, geometry, physics, and art [10]. There are techniques and

tools available for teachers to utilize in the classroom in order to stimulate the visual-spatial intelligences of their students. A list of technological visual-spatial tools for the classroom includes slides, overhead transparencies, film strips, movies, interactive videodisc (IVD), compact disc-read only memory (CD-ROM), compact disc interactive (CDI), and graphics programs [1].

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Visual-Spatial Reasoning

►Spatial Intelligence

Visuo-Spatial Intelligence

►Visual-Spatial Intelligence

VLBW

►Very Low Birth Weight

Volition

►Self-Determination

Voluntary Mutism

►Selective Mutism

Vomit

►Purging

Vulnerability

►Risk

Vygotsky's Cognitive Development Theory

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Synonyms

Vygotsky's social development theory; Vygotsky's socio-cultural theory

Definition

Vygotsky's Cognitive Development Theory postulates that social interaction is fundamental to cognitive development. Vygotsky's theory is comprised of concepts such as culture-specific tools, language and thought interdependence, and the Zone of Proximal Development. Furthermore, the theoretical concepts presented herein provide part of the foundation for constructivism and have contributed greatly to the restructuring of formal educational systems [1, 3].

Description

Vygotsky's Cognitive Development Theory argues that cognitive abilities are socially guided and constructed.

As such, culture serves as a mediator for the formation and development of specific abilities, such as learning, memory, attention, and problem solving. It is proposed that culture-specific tools play an integral role in the way children organize and think about the world. These tools may include various social artifacts, ranging from books and computers to cultural traditions [1].

Additionally, it is said that signs (or systems) mediate cognitive development. The most prominently referenced of these signs are language, writing and counting. Learning involves the internalization of these signs. Moreover, when discussing language, Vygotsky's theory of cognitive development emphasizes the interdependence of language and thought. A key component of this interdependence is evidenced through an early childhood behavior termed private speech. Private speech is a verbal dialogue that young children use for guidance and modification during the completion of a task or exploration of a new situation or concept. This dialogue is not socially communicative, and it may not be perceived as cohesive or well developed by observing adults. However, it aids in the organization of new information and directs development toward a higher-order processing. Private speech eventually becomes silent, transitioning into internal speech and then, ultimately, verbal thinking [2, 4].

It also is argued that learning occurs as external activity and awareness become internalized. Initially, behavior is exhibited without true intent; however, as the behavior becomes socially mediated it is internalized as meaningful and then purposefully demonstrated. For instance, Vygotsky offered the example of an infant reaching for an object just beyond reach. As the infant reaches, an adult caregiver socially responds to the nonverbal gesture and that gesture is then transformed into the intentional and socially-driven behavior of pointing [2, 3].

Another predominant aspect of Vygotsky's theory of cognitive development is the Zone of Proximal Development. According to this concept, there is a disparity between what a child can perform independently and the potential learning that can occur with the assistance of an adult or through collaboration with peers. Thus, a child's potential cognitive abilities are greater than the actual, measurable ability. Facilitated by adults or peers with more expertise, learning occurs in the Zone of Proximal Development [2, 3].

Although not specifically mentioned by Vygotsky, scaffolding has become closely associated with the Zone of Proximal Development. It is a technique that is used to maximize learning and requires that an adult or more more-skilled peer aid a child's acquisition of new knowledge and skills. This aid is slowly tapered off as the child becomes more versed in the particular skill [1].

Relevance to Childhood Development

The true impact of Vygotsky's Cognitive Development Theory was not realized during Lev Vygotsky's lifetime. However, this theory of cognitive development greatly influenced the understanding of child development. The primary concepts associated with this theory have engendered inherent changes in the way in which Western educational institutions approach learning. Specifically, many educational systems now integrate the concept of Zone of Proximal Development into a foundational framework. As such, practices such as scaffolding, in which a child's learning is aided by the assistance of teachers, has become an integral part of education [2, 3]. In addition, Vygotsky's theory of cognitive development provided an alternate way to view quantifiable concepts, such as intelligence.

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Vygotsky's Social Development Theory

►Vygotsky's Cognitive Development Theory

Vygotsky's Socio-Cultural Theory

►Vygotsky's Cognitive Development Theory

Vyvanse (Prodrug of Dextroamphetamine)

►Dextroamphetamine (Dexedrine, Dextrostat)

W

War on Poverty

►Head Start

Washburn, Margaret Floy

Kelli Vaughn-Blount
York University, Toronto, Canada

Life Dates

1871–1939

Educational Information

Washburn was born in Harlem, New York in 1871 and graduated from high school at the age of 15. In 1886, Washburn entered Vassar at the age of 16 with the intent to study chemistry and French. By the time Margaret Washburn graduated in 1891 her interests had grown to include both psychology and philosophy. Washburn pursued her graduate studies in experimental psychology with minors in philosophy and ethics at Cornell University as the first graduate student of E.B. Titchener, only 4 years her senior. Cornell was her second choice, as she had originally spent a year at Columbia University under James McKeen Cattell, who had recently established a psychology laboratory. However, Columbia's androcentric policies, like many at the time, would not recognize women as students (although Dr. Cattell agreed to allow her to sit in on his classes and to work in the laboratory). Cornell offered the opportunity for Washburn to receive an official degree unlike her contemporaries (see Christine Ladd-Franklin, Mary Whiton Calkins, and Lillien Jane Martin) at other U.S. and German Universities. In 1894, Margaret Washburn became the first woman to receive a university recognized Ph.D. in psychology and one of the first elected to membership in the newly formed American Psychological Association (APA). Her mentor–mentee relationship with Titchener deteriorated and finally ended as Washburn began to move away from Titchener's school of structuralism. In a 1927 letter to Christine Ladd-Franklin, Washburn stated her feelings towards her former advisor as someone that she felt less close to than any other human being in the world and whom she had not spoken to in over 20 years.

Accomplishments

Although living in a society that disregarded women's professional capabilities, Washburn was free from many gender restrictions and her obstacles were alleviated in part due to her social circumstances and personal choices, in comparison to other female psychologists (e.g., Margaret Morse Nice, Millicent Shinn). In addition to familial encouragement and economic support (a family trust), a fundamental contributor to her success was her maintenance of early contacts that she made while learning from and working with significant contributors in the field (such as Cattell) as well as professional relationships with leaders of systems and organizations (e.g., Robert M. Yerkes and Cornell University), regardless of their conceptual ideas. These characteristics, along with her active participation in specialized organizations and many editorial responsibilities, contributed to her full participation in the psychological sciences. That is not to say that Washburn had an easy time of it. Before proving herself to be an extensively capable researcher in the field, she faced constant rejections in the social system. She was aware of the social stigma of being a female professional, especially one who consciously chose to pursue a career without marriage. Marriage was not an asset for most professionally ambitious early women psychologists. In fact, female psychologists who chose to marry while employed often found themselves either unemployable, relegated to part time, or on the losing end of resource acquisitions. At times frustrated, Washburn nevertheless was forthright in defending herself and her work and was able to achieve prestige as a woman at a woman's college. Analogous to Calkins' position at Wellesley, women with PhDs were typically limited to hold positions at women's colleges or find jobs in applied settings outside of universities, as most educational institutions were unwilling to

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hire women as faculty. Even professional organizations such as the APA suppressed women professionals as women did not generally occupy top-level positions in the APA "in proportion to their numbers and qualifications" [9]. Washburn would be fortunate to see the first two female APA presidents during her lifetime; the first being Mary Whiton Calkins, 1905, and the second herself in 1921. It would be 51 years until APA would see its next female president, Anne Anastasi, in 1972. A similar occurrence was seen following Washburn's election to Titchener's Experimentalists Society. Washburn and June Etta Downey were the first female psychologists elected to the society in 1929; the next female member to be elected was Eleanor Gibson in 1958. She was also the first woman psychologist (and second female) elected to the National Academy of Sciences in 1932.

Washburn's research covered many areas but she is primarily known for her work in animal psychology (i.e., comparative) and mental motor processes (affective). Margaret Washburn's doctoral dissertation on the effect of visual imagery on judgments of tactual distance and direction [15] was published in Wilhelm Wundt's journal *Philosophische Studien*. This was a rare honor and her study became the first foreign study to appear in this European journal [10]. She had short term appointments elsewhere (Cornell, Cincinnati) but in 1903 Washburn became an Associate Professor of Philosophy at Vassar College where she would remain for the next 36 years. Under her direction, a department of psychology and active experimental psychology program were established within 5 years. Equipped with her own laboratory, Washburn pursued her many research interests (including, but not limited to, emotion, memory, and animal psychology). Due to the nature of female colleges of the period, Washburn's department would never include graduate training during her lifetime. Even though the women of her department would go on to publish 66 articles under her guidance, the fact that they would have gone on to study under others for graduate training means that her legacy would be diminished. In early psychology a scientific legacy was normally established through students who went on to be professionally successful and included their mentor in their academic legacy. Because Washburn's students would have trained elsewhere they would have counted their graduate mentors in their primary academic legacy and would most likely have excluded Washburn's influence from their historical records. Dallenbach (1940) states that Dr. Washburn's students went on to study at such institutions as Columbia, Cornell, Harvard, Ohio, Yale, and Michigan.

Margaret Washburn also held a prominent role in the history of psychological publishing. Her most prominent and lasting was that of editor for the *American Journal of Psychology* from 1903 to 1925. In addition, Washburn served in various editorial capacities for *Psychological Bulletin*, *Journal of Animal Behavior*, *Psychological Review*, and the *Journal of Comparative Psychology*.

Washburn was one of several influential women included in the first edition of the *American Men of Science*, which was published in 1906 by Dr. James McKeen Cattell. This project was a comprehensive directory of individuals in North America who had completed work that advanced the natural and exact sciences. Washburn's inclusion, along with other notable women, demonstrated the impact that women psychologists had on the field, despite the gender bias present in the professional and academic realms at the time.

Contributions

Washburn's love of animals inspired her lifelong foray into animal psychology. The former when combined with a growing interest in the study of consciousness resulted in the publication of *The Animal Mind* published in English in 1908 and in Japanese in 1918. A precursor to behaviorism, this publication was the first textbook in animal psychology to present the results of previous studies in a logical and coherent manner; although there had been earlier texts on animal intelligence by others such as George J. Romanes and Edward L. Thorndike. It was and is accepted as a classic and became the required textbook for certain courses at a number of universities such as Harvard and Berkeley. The text went out of favor only with the mainstream adoption of behaviorism. This was due in part to Washburn's refusal to remove the text's inclusion of mental phenomena/consciousness components. She would publish the fourth and final edition of *The Animal Mind* in 1936. The theories of consciousness had quickly fallen out of favor in the 1920s and 1930s.

In spite of Cattell's early functionalist teachings, Washburn accepted and maintained Titchener's structural approach to psychology throughout the 1890s. By 1903 however, her growing reservations about several principles of structuralism led her to develop her motor theory of consciousness, which emphasized the importance of motor processes on conscious processes. She presented and developed this theory through the publication of her second book *Movement and Mental Imagery* in 1916. This evolution of Margaret Washburn's motor process theory is best reflected in modern theoretical

constructions of behavior as part of cognition better known as the dynamic systems approach. Margaret Washburn continues to be the most frequently cited of the early female psychologists.

Washburn suffered a stroke in 1937, which led to her eventual death in 1939.

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Watson, John Broadus

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Life Dates

1878–1958

Introduction

John B. Watson is best known as the founder of behaviorism. He is also known for his role in initiating moving the field of psychology from a philosophical-based, mentalistic profession to a scientific, research-based profession in the early 1900s. Labeled as a radical by some of his colleagues and embraced by others, Watson enjoyed a tumultuous academic and personal life until his departure from Johns Hopkins University [1]. After leaving academia, he experienced great success in the advertising industry, rising to Vice-President first at the J. Walter Thompson Agency and then at the William Esty Agency. He remained in advertising from 1920 until his retirement in 1945. Insight into Watson's life and resolution of conflicting information is sometimes difficult as he burned all of his personal papers, correspondence, and manuscripts just prior to his death.

Educational Information

Watson began attending Furman University in 1894 at age 16 and graduated with a Master's degree in psychology in 1899. He went on to attend the University of Chicago, where he worked with the likes of John Dewey, Jacques Loeb, James Rowland Angell, and Henry Donaldson. While at the University of Chicago, he became interested in an objective, descriptive approach to psychology which was greatly at odds with the traditional mentalist approach en vogue at the time. Watson graduated with a doctorate in psychology in 1903.

Accomplishments

One of Watson's earliest accomplishments occurred in 1913 when he outlined the parameters of his new approach to psychology called "behaviorism." Often referred to as the "Behaviorist Manifesto" the article titled "Psychology as the Behaviorist Views It" noted that the goals of psychology should be prediction and control and that introspection had little relevance for a science of behavior. In 1914, Watson published a textbook, *Behavior: An Introduction to Comparative Psychology.* He hoped that

the textbook would introduce behavioral methodology to a wide audience and actually addressed a number of socially important topics of the era [1, 3].

Watson is most well known for his "Little Albert" experiments in 1920 in which he conditioned a fear response to a white rat in a 9-month-old infant while working with his assistant, Rosalie Rayner, who would later become his wife. In what may be one of Watson's most infamous misattributions, he is often quoted as saying, "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors." Indeed, this is an accurate quote, but this last sentence is often omitted to retain some semblance of valid criticism of Watson's behaviorism: "I am going beyond my facts and I admit it, but so have the advocates of the contrary and they have been doing it for many thousands of years." When looking at the totality of this quote, Watson was merely suggesting that traditional psychology was, and had been, going far beyond its data in its description of the human experience and that psychology needed to pursue answers to its questions using the scientific method [2].

Contributions

After getting his doctoral degree in 1903, Watson went on to work at Johns Hopkins University as a professor and researcher. Along with Robert Yerkes, they founded the *Journal of Animal Behavior* in 1910 in an attempt to connect psychology to the scientific fields of physiology and anatomy. Watson and Yerkes can be credited with laying the foundation of the behavioral approach to psychology and significantly impacting the current practice of psychology and psychological research, particularly with luminaries such as B. F. Skinner [2]. Watson published a textbook titled *Psychology from the Standpoint of a Behaviorist* in 1919 that elaborated on many themes from his "manifesto" [3]. Watson achieved monumental success before leaving Hopkins in 1920 in the midst of considerable controversy because of his affair with his graduate student Rayner. Watson, in his naivete and perhaps arrogance, thought himself and his actions were impervious to scrutiny because of the international status he had achieved by that time. During his advertising career, Watson continued to use his knowledge of psychology and behavioral principles to affect human behavior for a different purpose (i.e., selling and promoting products).

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WCST

▶Wisconsin Card Sorting Test

Wechsler Intelligence Scale for Children, Fourth Edition

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Synonyms

WISC-IV

Definition

The *Wechsler Intelligence Scale for Children – Fourth Edition* (WISC-IV; [17]) is the revision of the *Wechsler Intelligence Scale for Children – Third Edition* (WISC-III; [13]). Although David Wechsler died in 1981 and the Psychological Corporation currently prepares revisions of the Wechsler assessments, David Wechsler is cited as the author of the WISC-IV [2]. The WISC-IV is an individually administered assessment containing fifteen subtests that provide a comprehensive assessment of intellectual ability. The WISC-IV can be used with individuals aged 6–16 and contains normative tables for this age group [1].

Description

The fifteen subtests of the WISC-IV are divided into ten core subtests and five supplemental subtests. The core

subtests are: Similarities, Vocabulary, Comprehension, Block Design, Picture Concepts, Matrix Reasoning, Digit Span, Letter-Number Sequencing, Coding, and Symbol Search. The supplemental subtests are: Information, Word Reasoning, Picture Completion, Arithmetic, and Cancelation. The core and supplemental subtests comprise four broad areas of intellectual functioning called Composites or Indexes. The WISC-IV Composites are: Verbal Comprehension, Perceptual Reasoning, Working Memory, and Processing Speed. Scores from the Composites constitute the WISC-IV Full Scale Intellectual Quotient (FSIQ) which ranges from 40 (Exceptionally Low) to 160 (Exceptionally Superior) and is a global assessment of cognitive functioning [2]. The WISC-IV allows for intra-individual (ipsative) analysis of strengths and weaknesses in broad cognitive ability domains and in subtests. Although the Wechsler scales have been criticized for failing to identify a theory from which assessment constructs and scores can be interpreted, the WISC-IV remains one of the most widely used intelligence assessments worldwide [1].

The WISC-IV normative data were collected from a geographically diverse and nationally representative sample of 2,200 children. Samples were divided into eleven age groups; 200 participants were placed in groups representing single age groups from 6 years of age through 16 years of age. WISC-IV subtests yield raw scores which can be converted to age-equivalent scaled or composite scores. Percentile ranks and confidence intervals are also available for additional interpretation of test performance [19].

The Wechsler scales were created by clinical psychologist David Wechsler. Wechsler's training under Charles Spearman and Karl Pearson, as well as his experience with Army Alpha/Beta testing, most likely influenced the creation of his own battery of tests. In 1939, he created an adult test named the *Wechsler-Bellevue Intelligence Scale*, named for the Bellevue Psychiatric Hospital in which he would be employed as chief psychologist for over 30 years. A second form of the Wechsler-Bellevue Intelligence Scale was created in 1946. Eventually, the second form of the Wechsler-Bellevue Intelligence Scale would be modified to become the *Wechsler Intelligence Scale for Children* (WISC) in 1949. An assessment for young children was made possible with the creation of the *Wechsler Preschool and Primary Scale of Intelligence* (WPPSI) in 1967 [1]. The *Wechsler Intelligence Scale for Children-Revised* (WISC-R), the next revision of the WISC, was released in 1974 [9].

The Psychological Corporation continues to revise the Wechsler scales in the effort to improve the theoretical foundations, psychometric properties, developmental appropriateness, and user friendliness of the assessments [2]. Since 1974, the WISC has undergone two more revisions: the WISC-III in 1991 and the WISC-IV in 2003. In an effort to keep up with current standards of psychological assessment, the WISC-IV represents the most amount of change in a revision of all Wechsler assessments [1].

Internal consistency reliability for WISC-IV was calculated using a split-half analysis with normative sample data. Reliability coefficients for the composite scales ranged from 0.88 to 0.97 and additional internal consistency analysis suggests the WISC-IV is a reliable assessment for children with or without clinical diagnoses. Test-retest data for five age groups provide evidence of WISC-IV score stability over time. The *WISC-IV Technical and Interpretive Manual* [19] provides a discussion of internal structural evidence for the assessment that includes intercorrelational evidence as well as a cross-validation analysis. In addition, the WISC-IV has been found to correlate with other measures including the *Children's Memory Scale* (CMS), *Gifted Rating Scale-School Form* (GRS-S), *Adaptive Behavior Assessment System – Second Edition* (ABAS-II), and several other Wechsler scales [19].

The technical manual of the WISC-IV describes a broad range of uses for the test. In addition, test score results for children with Autistic Disorder, Asperger's Disorder, Expressive Language Disorder, Attention-Deficit/Hyperactivity Disorder, learning disabilities, and many other disorders are available to provide information that can be of help to the clinician [1]. The WISC-IV can be used in conjunction with the *Wechsler Individual Achievement Test – Second Edition* (WIAT-II; [20]) for normative and ipsative analyses due to the co-norming of the assessments. The use of these two assessments in conjunction provides information on specific cognitive deficits that may impact academic achievement as well as a prediction of future academic achievement [18]. Flanagan and Kaufman [1] report significant strengths of the WISC-IV that include strengthened factor structure, straightforward scoring criteria, and the inclusion of process scores and clinical validity data.

Relevance to Childhood Development

The WISC-IV is a standardized assessment that is widely used to assess the cognitive ability of children and adolescents. This assessment can provide valuable information as to the verbal and nonverbal cognitive abilities of the individual. The information provided by this assessment can provide a rationale or guideline for educational, treatment, or program planning tailored to the specific needs of the individual with the ultimate goal of facilitating appropriate development.

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Wechsler Nonverbal Scale of Ability

The Wechsler Nonverbal Scale of Ability (WNV; Wechsler & Naglieri, 2005) is an individually administered test for assessing the general ability for individuals 4 through 21 years of age. The WNV was developed to measure general ability using questions that do not contain verbal content and to do so using a number of different types of subtests. Pictorial directions were developed to reduce or eliminate the need for verbal instructions to communicate the demands of the subtests, and no question requires a verbal response. These characteristics make the a test useful with populations that are diverse in terms of linguistic, educational, cultural, socioeconomic backgrounds, and handicapping conditions such as language disabilities and hearing loss. The WNV was designed to be useful across cultural and linguistic groups as well as national boundaries.

The WNV measures general ability with only so called "nonverbal" tasks in contrast to other versions of the Wechsler Scales that measure general ability with a group of verbal, arithmetic, and nonverbal subtests. The advantage of using nonverbal test questions to measure general ability is that the need for receptive language skills is minimized and the influence of expressive language and mathematic skills on the score is eliminated. Despite the fact that the WNV subtests are all nonverbal, they are diverse in their specific requirements. For example, some of the WNV subtests require visual-spatial problem solving, others demand recall of the sequence of information, and others demand paper and pencil skills. This variety of requirements in the subtests makes the WNV different from tests that use one type of items, such as the Naglieri Nonverbal Ability Test – Individual (NNAT-I; Naglieri 2003). The WNV measures general ability using subtests that vary in their specific requirements, but the NNAT-I uses one type of item format – the standard progressive matrix. The goal of both these tests is to measure the general ability for a wide variety of individuals using nonverbal test administration procedures and nonverbal test content. Despite the variability of subtest content and task demands, the subtests retain the essential goal of measuring *general ability nonverbally.*

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Wechsler, David

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Life Dates

1896–1981

Educational Information

David Wechsler received his A.B. degree from City University of New York in 1916, and his M.A. degree from Columbia University in 1917 (where he was influenced by Robert S. Woodworth, Edward L. Thorndike, James McKeen Cattell, and Thomas Hunt Morgan). A few months later, he joined the army and worked as a psychologist at Camp Logan in Texas. In this capacity, he was involved with the administration of the newly developed Army Alpha and Beta tests (group intelligence tests for literate and illiterate recruits, respectively), and became acquainted with the tests' developer, Robert M. Yerkes. He also administered Louis Terman's 1916 version of the "Stanford-Binet" intelligence test to recruits who failed the group tests. In 1918, an assignment by the Army gave him the opportunity to study with famed measurement theorists Karl Pearson (of Pearson's product moment correlation coefficient or *r*) and Charles Spearman (of Spearman's general intelligence or *g*) at the University of London [5]. Discharged from the army in 1919, Wechsler accepted a fellowship at the University of Paris where he conducted experimental research. In 1922, he returned to New York City where he worked as a clinical psychologist at the Bureau of Child Guidance while completing his Ph.D. in experimental psychology at Columbia University (1925). It is worth noting that Wechsler's training as an experimental psychologist gave him a unique perspective as a clinician and test developer [4].

Accomplishments

Wechsler worked in private practice in clinical psychology from 1925 until 1932, at which point he became the chief psychologist in the Psychiatric Division of Bellevue Hospital – a position he would hold until 1967. In his work at Bellevue Hospital, his patients included adults from diverse socioeconomic and cultural backgrounds.

In 1935, Wechsler published a book that he later considered to be his major work: *The Range of Human Capacities* [7]. A central conclusion was that the range of human abilities (including intelligence) was fairly small. In 1939, he published the first edition of his classic *Measurement of Adult Intelligence* [8]. That same year, building on his experimental training and his rich experiences in both testing and clinical practice, Wechsler published his own instrument, the Wechsler-Bellevue Scale of Intelligence [2]. The test was published by Cattell's newly founded Psychological Corporation (which is now a subdivision of Pearson). The predominant IQ test of the time, Louis Terman's Stanford-Binet Intelligence Test (1916, 1937), had a number of limitations. The Stanford-Binet was primarily designed for children, used ratio IQ (mental age over chronological age, times 100), and yielded only one score. In contrast, Wechsler's new test was designed for adults, used deviation IQ (which worked with adults – ratio IQ did not), and yielded several scores: a full-scale IQ score, verbal and performance IQ scores, and scores resulting from individual subtests (i.e., information, comprehension, memory span, similarities, arithmetical reasoning, picture arrangement, picture completion, block design, object assembly, digit symbol, and as an alternate, vocabulary). Each subtest was designed to contribute equally to the overall score. The approach Wechsler took was prescient, in that through factor analysis, modern intelligence tests have a similar breakdown of scores: an overall IQ (reflecting *g*), several composite scores (each based on two or more subtests), and then a number of scores based on individual subtests.

Psychologists became acquainted with the Wechsler-Bellevue as a result of their exposure to it during World War II, and this led to a great demand for the test after the war. The test was renamed the Wechsler Adult Intelligence Scale (WAIS) when it was revised in 1955, and the most recent edition of this popular test is the WAIS-IV (2008). Wechsler viewed his test as a clinical instrument and believed that, through careful behavioral observation, it provided more information than just a rigid interpretation of the various numerical scores. The Wechsler-Bellevue served as a template for the development of a similar version designed for children, the Wechsler Intelligence Scale for Children (WISC, 1949), the most recent of which is the WISC-IV (2003). Additional tests designed by Wechsler include the Wechsler Memory Scale (WMS, 1945) and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI, 1967), both of which continue to be used in more recent revisions, the WMS-III (1997) and the WPPSI-III (2002). Of these tests, the WAIS and the WISC in particular became the most widely used intelligence tests for their respective age groups, and they continue to hold these positions today.

Wechsler came to believe that intelligence could be operationally defined as "the aggregate or global capacity to act purposefully, to think rationally, and to deal effectively with his environment" [9]. He viewed intelligence not as a cause, but as an effect. Further, as a clinician, he emphasized the role of personality in the development of intelligence, and encouraged pattern or profile interpretation of individual and composite scores [3, 6].

Contribution

The year 1896 was a notable one for students of child behavior and development. That year the correlation

coefficient (r) was devised by Karl Pearson, and theorists Jean Piaget and Lev Vygotsky were born. So, too, was born an important theorist, clinician, and developer of a series of cognitive tests: David Wechsler.

Wechsler's long career produced theoretical publications and products that influenced generations of psychologists up to and including those of the 21st century. His initial, 1939 intelligence test laid the groundwork for a series of well-received tests for adults (WAIS-IV, 2008), children (WISC-IV, 2003), and preschoolers (WPPSI-III, 2002). Alongside the Stanford-Binet Intelligence Test, Wechsler's IQ tests became the standards in their respective fields. Indeed, newly-developed tests are routinely correlated with Wechsler tests in order to provide evidence for construct validity (i.e., that they, too, are measuring the construct of "intelligence").

Of particular relevance to this volume, the Wechsler Intelligence Scale for Children continues to be used extensively to identify children with special needs (e.g., mental retardation, learning disabilities) to enable them to receive special education services. The test has also been used to identify high-functioning children for participation in gifted programs. Further, as suggested by Wechsler, the test has been used to aid in clinical diagnoses.

Wechsler's influence is ongoing, as tests in the Wechsler tradition continue to be developed, such as the Wechsler Individual Achievement Test (1992; now the WIAT-II, 2001), the Wechsler Abbreviated Scale of Intelligence (WASI, 1999) and the Wechsler Nonverbal Scale of Ability (WNV; Naglieri & Wechsler, 2006) [1]. Modern intelligence theorists and test developers owe much to the pioneering work of psychologist David Wechsler.

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Weight

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Synonyms

Body mass; Body weight; Obesity; Overweight

Definition

The vertical force exerted by body mass due to gravity.

Description

Body weight or body mass is considered a marker of risk for disease and overall health. In recent years, there has been a dramatic increase in overweight/obesity in both children and adults [19, 20]. The number of overweight children in the United States is four times greater than it was in 1965 [13], but this increase has not been limited to the United States. This worldwide increase in overweight children and adults has led the World Health Organization (WHO) to assert that obesity is one of the most critical health problems facing the United States and the world [27].

Assessment. In general, body weight or body mass is assessed through the calculation of body mass index (BMI). BMI is calculated as weight in kilograms divided by height in square meters. Center for Disease Control (CDC) BMI-for-age growth charts are often utilized in the classification of obesity [16]. In children, BMI between the eighty-fifth and ninety-fourth percentiles has been used to define at-risk for overweight and $\geq$95th percentile as overweight in children [12]. In children, it is critical to utilize BMI charts that are age and gender specific as BMI trajectories vary greatly across these domains.

In adults, the WHO has recommended a classification system in which a BMI between 18.5 and 24.9 is classified as normal weight, a BMI between 25.0 and 29.9 is classified as overweight and a BMI over 30 is classified as obese [27]. While BMI is still the primary assessment of body weight, waist circumference is increasingly being utilized, particularly in adults [27]. Waist circumference is measured midway between the lower costal margin and the iliac crest. The WHO has identified two classifications for waist circumference: risk for obesity – associated metabolic complications increased and risk for obesity – associated metabolic complications substantially increased. Men with waist circumferences between 94 cm and 101.5 cm as well as women with waist circumferences between 80 and 87.5 cm are classified as at risk for obesity – associated

metabolic complications increased. Men with waist circumferences greater than 102 cm and women with waist circumferences greater than 88 cm are classified as at risk for obesity – associated metabolic complications substantially increased.

Etiology. The increase in obesity globally is argued to be driven primarily by changes in environment as opposed to genetics [27]. However, genetics may determine whether or not an individual becomes obese within a particular environment. Researchers continue to search for genes that cause obesity as well as genes that predispose one to obesity [2].

Overweight and obesity are ultimately the result of an imbalance of energy intake and energy expenditure. Multiple factors have been identified as contributing to the increase in childhood obesity. The development of energy-saving devices and increase in the marketing and availability of energy-dense foods has created a toxic environment in the United States and many other industrialized countries [4]. A 15% per capita food increase has occurred since 1970 but children's exercise and physical activity have decreased [13]. Children are targeted by food companies advertising sugared cereal, candy, fast food, and soft drinks. Along with this increased energy intake, children are spending more hours a day in front of a television, computer, or gaming system [6]. Television watching rates and fast food consumption rates have increased among children from all ethnic groups, but rates have increased disproportionately in ethnic minority children [6].

Beyond the societal level, families play an important role in food consumption and physical activity patterns in children. Parents role model dietary behaviors and teach their children about food [1, 14]. Parent's child feeding practices such as pressuring a child to "clean their plate" or restricting less healthy foods have been associated with failure of the child to learn to self-regulate food intake and increased body weight [9, 15]. Parents also role model physical activity patterns [17] and encourage or discourage physical activity [21]. When both parents are active, a child is almost six times more likely to be active than if neither parent is active [17]. A family's access to a safe environment to engage in physical activity as well as financial and time resources may also impact parent feeding practices, dietary intake and physical activity.

Treatment/prevention. The alarming increase in childhood obesity has led to the development of many prevention and intervention programs [10]. Interventions with schools and caregivers have been identified as critical to change the behaviors of young children [8]. As children in the United States consume approximately one-third of their energy intake at school, many programs have sought to change school lunch services and limit access to soft drinks and candy at schools [26]. Increased physical education programs have also been the target of intervention programs as children in the United States acquire between 20 and 40% of their total physical activity while at school and many children only engage in physical activity at school [22]. While family and school interventions have been implemented, no single treatment program has been identified as successfully ameliorating childhood obesity.

Relevance to Childhood Development

While researchers were initially concerned that increased obesity in childhood would lead to health problems in adulthood, it is now evident that there are significant health problems associated with obesity in children during their childhood years [7, 18]. Beyond numerous physical health risks, children who are overweight or obese face serious psychosocial challenges. Overweight and obese children encounter early and frequent discrimination. Body size stigmatization has been shown to begin as early as 3 years old and continue throughout childhood [5, 25]. This rejection and harassment from peers is associated with poor self esteem, depression, withdrawal, decreased physical activity, and increased emotional eating [3, 11, 23, 24]. These psychosocial consequences create a vicious cycle in which overweight and obese children avoid active play situations out of a fear of embarrassment [11]. Therefore, the child avoids the activity that will allow him or her to reduce sedentary activity and increase caloric expenditure. The childhood obesity epidemic will remain the subject of continued investigation and intervention due to its significant impact on physical, social, and psychological development.

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Weight Faltering

▶Failure to Thrive Syndrome

Well-Being

▶Life Satisfaction

Wellbutrin

▶Bupropion

Werner Syndrome

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Synonyms

Adult premature aging syndrome; Adult progeria; Pangeria; Progeria adultorum; Progeria of the adult; Werner's syndrome; Werners syndrome

Definition

Werner syndrome is named after Otto Werner, a German physician (1879–1936), and is an extremely rare, autosomal (An autosome is a non-sex chromosome. It is an ordinarily paired type of chromosome that is the same in both sexes of a species.) recessive (A recessive gene is one that is not expressed unless there are two of them, one from each parent.), systemic disease associated with the dramatic, rapid appearance of aging in children.

Description

Epidemiology

Werner syndrome is extremely rare with only approximately 1,300 cases reported worldwide since 1916, with 1,000 of those coming from Japan [7]. The syndrome is estimated to affect 1 in 200,000 individuals in the United States in contrast with 1 in 20,000–40,000 individuals in Japan. In Japan, the frequency of heterozygote carriers of the condition within the general population is estimated as 1 in 180 [11].

Etiology

Werner syndrome is inherited in an autosomal recessive pattern, which means two copies of the gene in each cell are altered. Most often, the parents of an individual with an autosomal recessive disorder are carriers of one copy of the altered gene but do not show signs and symptoms of the disorder [9, 10].

Researchers have found that mutations in the WRN gene found on chromosome 8 are the cause of Werner syndrome [5]. The WRN gene provides instructions for producing the Werner protein, which plays a critical role in repairing damaged DNA. This is thought to perform several vital tasks in the cell, including the maintenance of the structure and integrity of a person's DNA. It also assists in making copies of DNA (replication) in preparation for cell division and transferring the information in genes to the cell machinery that makes proteins (transcription (Transcription is the process by which genetic information is copied from DNA to RNA, resulting in a specific protein formation.)).

More than 60 mutations in the WRN gene are known to cause Werner syndrome. Most of these mutations result in an abnormally short, non-functional Werner protein [2, 6]. Evidence also suggests that this shortened protein is not transported into the cell's nucleus where it normally interacts with DNA, leading to a loss of Werner protein function. Furthermore, the shortened protein is broken down more quickly than the normal Werner protein, reducing the amount of this protein in the cell. Without normal Werner protein in the nucleus, DNA replication, repair, and transcription are disrupted and cause health problems related to this condition [3]. Researchers are still determining how mutations in the WRN gene lead to the signs and symptoms of Werner syndrome.

Features

Individuals with Werner syndrome typically grow and develop normally until they reach puberty. The age of onset of this syndrome is variable and might occur in individuals in their mid teens or it may be delayed until an individual is as old as 30 years. The average age of patients at the time of diagnosis is 37 years. Additionally, no racial predilection has been reported and both sexes are affected equally.

The hallmark of this syndrome is a striking disproportion between the patient's real age and the patient's appearance. However, an early sign of Werner syndrome is the lack of a teenage growth spurt, which results in short stature of usually less than 1.60 m. Other signs and symptoms that appear when affected individuals are in their twenties or thirties include loss and graying of hair, hoarseness, thickening and wrinkling of the skin, muscle atrophy, a high-pitched voice, and cloudy lenses (cataracts) in both eyes [4, 8]. Overall, people affected by Werner syndrome have thin arms and legs and a thick trunk. As the syndrome progresses, affected people may experience additional skin problems, Type 2 diabetes, diminished fertility, arteriosclerosis (Arteriosclerosis is a thickening, hardening, and loss of elasticity of the arterial walls resulting in impaired blood circulation.), osteoporosis (Osteoporosis occurs when bones loose an excessive amount of their protein and mineral content, particularly calcium. Over time, bone mass, and therefore bone strength, is decreased. As a result, bones become fragile and break easily.) and some types of cancer [1]. Affected individuals typically have a characteristic facial appearance described as "bird-like" by the time they reach their thirties. This is said to be caused by a pinched nose and sunken cheeks because of fat loss. People affected by Werner syndrome usually live into their late forties or early fifties.

Treatment

Treatment for people with Werner syndrome centers on symptomatic management of the related diseases. Cataracts are removed, surgical intervention and hyperbaric oxygen therapy may be of use in the treatment of refractory skin ulcers, and heart disease, osteoporosis, arteriosclerosis, diabetes and cancer are treated. However there is no known cure for the condition. Early recognition of the syndrome is helpful, as screening for malignancies and associated diseases for the relatives of affected individuals

may be performed on a regular basis [7]. Genetic counseling is also recommended for the individual carrier and the relatives of the affected individual in order for the carrier status of all affected individuals to be established.

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Werner's Syndrome

►Werner Syndrome

Werners Syndrome

►Werner Syndrome

Wernicke, Carl

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Life Dates

1848–1905

Educational Information

Carl Wernicke was born on May 15, 1848, in Upper Silesia. His secondary education was received while at the gymnasium in Oppeln. With his mother's determination, he got into Breslau University to study medicine. He remained at Breslau University for 6 months after graduation as an assistant in the Ophthalmology Department. He served as an army surgeon in the France-Prussian War of 1870, and then returned to the University as an assistant in the Psychiatry Department. Wernicke's mentor, Henrich Neumann, sent him to study neuroanatomy for 6 months in Vienna under Theodor Meynert. In 1874, while in Vienna, Wernicke published his famous work, *Der Aphasische Symptomencomplex* (The Aphasic Syndrome): *A Psychological Study on an Anatomical Basis* [4].

Accomplishments

Wernicke was appointed to assistant in the Berlin Clinic to work under Westphal in 1875. He remained there until 1878, when he began practicing medicine and neurology in his private practice producing many publications until 1881. One of the famous publications written during this time was his authoritative text, *Lehrbuch der Gehirnkrankheiten (1881)* that focused on the classification of brain diseases and classifying the localization of brain lesions.

In 1885, Wernicke succeeded Neumann's position at the Allerheililgen Hospital and also became the chair of the Department of Neurology and Psychiatry at Breslau University Hospital in 1890. For 20 years Wernicke had great success, as the Breslau Clinic became a major center for neuropsychological investigations. Many famous scientists, such as Hugo Liepmann and Karl Kleist, studied and developed their basic concepts while at the Breslau Clinic. Wernicke's relationship with the University soured and he accepted a position as head of the Klinik fur Psychiatrie und Neurology in Halle in 1904. Unfortunately, Wernicke's life was cut short in 1905, when he was tragically killed in a car accident. His contributions to the field of neurology and psychiatry live on as neuroscientists continue to study aphasia and related areas of interest [4].

Contributions

While still a young physician-in-training, Wernicke saw many patients who had difficulty comprehending language. While the patients had fluent speech, their speech had little if any meaning. They had difficulty finding the right words to say and, consequently, produced many neologisms (made-up words only understood by the speaker). Wernicke had the opportunity to perform an autopsy on one of the patients. As noted in Saffran [4], the results of the autopsy indicated a stroke (cerebral infarct) involving the middle third of the posterior superior temporal gyrus of the left hemisphere that further extended into the middle temporal gyrus. This area lies extremely near to the primary auditory cortex, which led Wernicke to suggest the region is apart of the auditory association cortex. In addition to the speech area in the frontal lobe, as discovered earlier by Pierre Paul Broca, Wernicke concluded that the region he examined must be another language center in the left hemisphere [2].

Wernicke assumed that the sensory and motor centers for language must be connected if a child has to learn the sounds of their primary language before they have the ability to produce them. He predicted that if the connection between the sensory and motor centers was disrupted, then production would be impaired while comprehension would be preserved because the superior temporal area would not be disrupted [1].

Wernicke's aphasiac syndrome is still very important to studies of the brain being done today. Individuals with this identified syndrome experience difficulty with word comprehension and speech production. This syndrome can have a huge, negative impact on communication, often without anyone knowing something is wrong [3]. Recent studies have supported that the superior temporal lobe is involved in how one perceives and produces spoken language. While questions still remain on where the exact mechanisms are located that support the processes defined by Wernicke, he opened the door and made it intriguing to study the superior temporal lobe of the brain [2].

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Wernicke's Aphasia

►Childhood Aphasia

Wernicke's Area

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Synonyms

Planum temporal

Definition

Area of the brain located in the middle to posterior (to the lateral fissure) portion of the superior temporal gyrus (temporal lobe) of the left hemisphere.

Description

Wernicke's area is primary to language comprehension of individual words. Damage to the area results in *Wernicke's Aphasia*, which is characterized by fluent and meaningless speech and poor speech comprehension.

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Wertham, Frederic

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Life Dates

1895–1981

This work represents the scholarship of the author and does not imply any official position of the New York City Department of Education.

Educational Information

Wertham earned his M.D. from the University of Wurzburg in 1921.

Accomplishments

Wertham taught at John Hopkins University and practiced at the Phipps Psychiatric Clinic prior to moving to New York City. Originally, his expertise lay in neuroanatomy, but after immigrating to the United States in the 1920s he gradually shifted his focus to applied social problems such as racism and the lack of adequate mental health services for the poor. Wertham's testimony figured prominently in the landmark *Brown v. Board of Education of Topeka* desegregation case, and in Harlem, Wertham established the Lafargue Clinic, a mental health facility that charged minimum fees. He was also the only psychiatrist appointed as a consultant to Senator Kefauver's 1950 Senate Subcommittee for the Study of Organized Crime.

In the late 1940s, Wertham began to write about comic books [8]. In the United States and elsewhere, many parents, teachers, clergy, and politicians were uncomfortable with the pulp adventures their children were reading and Wertham added his voice to theirs. To Wertham, comic books were not merely morally objectionable; they were an increasingly important causal factor for sexual deviance and juvenile delinquency, and Wertham sought to warn the American public through his largely anecdotal writings. The conclusions Wertham drew were based upon his experience as an expert witness in court cases, as well as his extensive psychiatric work with children, particularly at the Lafargue Clinic. Wertham's [5] popular book *Seduction of the Innocent* (1954), in tandem with his key role in the 1954 Senate Subcommittee on Juvenile Delinquency, best encapsulates his legacy, as these contributions led directly to the formation of the Comics Code Authority and the redefinition of comic books in the United States throughout most of the latter twentieth century as being primarily a source of children's entertainment that needed to be closely regulated by its industry. It is important to note that his disdain of experimental psychology, as well as his argumentative and forceful writing style, earned him criticism within the field of social science even during his salad days [4].

Wertham continued to work at the Lefargue clinic and critique objectionable content in children-oriented mass media for the remainder of his career, although with considerably less popular attention [6, 7].

Contributions

Wertham is best-remembered as an exemplar of children's advocacy and as a crusader from the social sciences. To a degree, his concerns with media effects on children's behavior and social learning can be construed as a precursor to Albert Bandura's better-known research. Wertham, however, decried the positivist and empiricist trends within laboratory research such as Bandura's, which also makes him a forerunner of post-modern social scientists like Richard Shweder. Still a controversial figure decades after his death, Wertham was the subject of equivocal reappraisals in the late 1990s in such books as *Seal of Approval* and *Pulp Demons* [1, 2, 3].

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Whacking Off

▶Masturbation

Wheeled Sports Accidents

▶Bicycle Accidents

Whiplash Shaken Infant Syndrome

▶Shaken Baby Syndrome

Whippets

▶Inhalants

Whipping

►Spanking

White Matter

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Synonyms

Axon

Definition

White matter is myelin that is white in color and it is the insulation casing of the nerve fibers [5].

Description

Inside the brain the first layer is gray matter that contains nerve cell bodies. The next layer is a white substance that contains myelinated nerve fibers. This is where communications distribute between the gray matter and white matter throughout the nervous system [1].

The notion is that myelination of axons is important in childhood development of cognitive functions particularly with working memory and reading abilities [4].

In the spinal cord the outer layer is white matter that is made up of bundles ascending and descending myelinated axons. The inner core is gray matter mainly short neural cell and unmyelinated axons [3].

Damage to the white matter by lack of oxygen at birth or transplacental viral infection may cause periventricular leukomalacia and may develop into cerebral palsy depending on where the brain was impacted [2].

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Whiteheads

►Acne

Whole Language Approach

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Synonyms

Comprehensible input; Integrated language; Literature based instruction; Natural learning; Problem-based learning; Student-centered instruction holistic learning

Definition

The whole language approach is an instructional philosophy on teaching reading and writing. It is based on three constructivist assumptions: (1) learning cannot be separated from its context, (2) each learner's purpose for learning is integral to what is learned, and (3) knowledge gained by each learner is socially constructed through negotiation, evaluation, or transformation [1].

Description

Instruction in classrooms that follow the whole language approach is planned around thematic units integrating various disciplines. Spelling, reading, writing, speaking, and grammar are integrated into the instruction and are not taught as separate components. The planned literacy events serve functions and are authentic, not skill-based lessons. The activities planned must include the four dimensions of teaching and learning, which are: explicitness, systematicity, mindfulness, and contextualization. Genuine literature is used as opposed to nonsensical, decodable texts. Writing opportunities are genuine as well in that they serve purposes. In addition, the whole language classroom must promote engagement and offer demonstrations of effective reading behavior [1, 2].

History

The whole language approach to literacy learning traces its roots back to the works of Piaget, Chomsky, and Vygotsky. In the 1980s researcher Kenneth Goodman progressed the whole language movement by focusing on four beliefs about learning. First, students are central to learning bringing universal commonalities and differences to the classroom. They take ownership of their learning by setting their

own goals and purposes for reading and writing. Second, teachers do not control learning in the classroom; they guide their students as they construct their own meaning through problem solving. Third, language is key to learning. Language use demonstrates thought symbolically, and it allows students to interact socially. Finally, the whole language approach builds on the belief that we learn by using language as we learn that particular language [1, 3].

Criticism

The whole language approach acknowledges that reading outcomes of learners are created by how learners are taught to read. Proponents of the whole language approach reject the use of decodable, nonsensical texts and the direct instruction of decoding skills and phonics instruction. Many researchers disagree with this top-down approach and endorse direct instruction of discrete skills. The whole language approach is considered by many in the field of literacy research as the antithesis of phonics-based reading instruction [1].

Relevance to Childhood Development

Based on Vygotsky's belief that language is internalized through social interaction, the whole language approach emphasizes the social aspect of learning and meaning construction. In addition, the whole language approach requires language experiences, both oral and written, be genuine by serving purposes for the learners. Whole language classrooms are risk free for students since no one meaning is considered correct. Learner engagement is reinforced as learners bring their own goals and purposes to the classroom [2].

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Whorfian Hypothesis

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Synonyms

Linguistic determinism; Linguistic relativity; Sapir-Whorf hypothesis

Definition

The hypothesis suggests that human thought is influenced by the language one speaks.

Description

The term *Whorfian Hypothesis* takes its name from Benjamin Lee Whorf (1876–1941) who claimed that the language one speaks influences one's thinking [7]. Whorf was an amateur linguist who studied with the anthropologist Edward Sapir in the 1920s and 1930s. The term Sapir-Whorf Hypothesis is also used to refer to their view that language determines thinking. Linguistic determinism and linguistic relativity are also terms referring to the notion that the characteristics of one's language shape one's cognition.

The hypothesis was developed following observations of cross language differences in linguistic structure and speculations about how such differences might impact speakers' thinking. For example, Whorf noted that in the Hopi language, there was little to no grammatical marking for tense. Utterances describing events occurring in the present were similar to utterances describing events occurring in the past and in the future. It was suggested that Hopi speakers think about time differently from speakers of other languages in which tense is a prominent feature of the grammar, such as English where there are suffixes added to verbs to indicate tense.

The processing of color terms has received a great deal of attention in relation to the Whorfian Hypothesis. Languages differ in the number of words referring to color. Berlin and Kay [1] pointed out languages have between 2 and 11 color terms. Across languages, there is a hierarchy of color terms. If a language has only two color terms, they are used to refer to *dark* and *light*. If a language has three color terms, the third color term is always *red*. If a language has four color terms, the fourth color term is *yellow*. Languages with five and six color terms have *blue* and/or *green* [1]. In a well-known test of the Whorfian Hypothesis, Heider and Olivier [3] investigated the color perception of speakers of a language in which there were just two color words. The language was Dani, which is spoken in Indonesia New Guinea. Contrary to the predictions of the Whorfian Hypothesis, the results showed that the recall of color was similar, rather than different, for Dani and English speakers [3]. In 2000, Roberson, Davis, and Davidoff conducted a similar investigation of the color processing of English, Dani, and Berinmo speakers [6]. Berinmo is spoken in Papua New Guinea and has five color terms. The results provided evidence for the influence of language in color cognition.

Over the last four decades, there is growing evidence that differences in number processing may also be linked

to differences in language. For example, Piraha is a language spoken in the Amazon region of Brazil. It has few words to refer to numbers. Studies of Piraha speakers have found that they show poor performance when reasoning about and remembering quantities [2, 5].

Without a doubt, the extent to which language influences thinking remains unclear. Most researchers reject what has come to be known as the strong version of the Whorfian hypothesis, which is the claim that language strongly determines what can be thought or perceived. In accordance with this view, if one's language does not have a word for something, such as a color, one cannot perceive it. However, most researchers are comfortable with what has come to be known as the weak version of the Whorfian Hypothesis, which is the view that one's language influences one's cognitive processes, particularly memory [4].

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Wide Range Assessment of Memory and Learning

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Synonyms

WRAML2

Definition

The *Wide Range Assessment of Memory and Learning* – second edition (WRAML2), is an assessment measure of an individual's memory functioning for immediate and delayed memory as well as verbal, visual and global memory deficits.

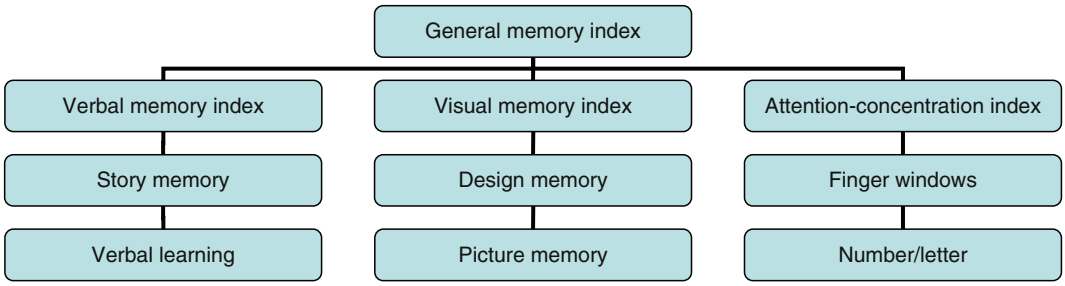
Description

Structure

The WRAML2 was published in 2003 and is an individually administered assessment of memory and learning. This assessment can be administered to individuals from 5 to 90 years of age. It is comprised of six core subtests, seven delay memory tasks, two working memory subtests and four recognition subtests. The sum of scaled scores for the six core subtests combine to form a general memory index. Within the general memory index, there are three sub-indexes: a verbal memory index, a visual memory index and an attention and concentration index. In addition to the six core subtests, the WRAML2 has seven optional subtests which yield scaled scores for assessing working memory, delay recall and recognition (Fig. 1).

The verbal memory index assesses the individual's ability to remember and learn information presented in verbal form. This index is comprised of the story memory and verbal learning subtests. Story Memory asks the individual to listen to two short stories and then orally recall information, assessing recall for meaningful auditory information. The verbal learning subtest asks participants to listen to a list of common single-syllable words and recall as many as they can immediately, across four consecutive trials. This subtest evaluates auditory memory for information that is not presented within a context and assesses the individual's ability to actively learn unrelated verbal information [4].

The visual memory index assesses the individual's ability to remember and learn information presented to them visually. This index is comprised of the design memory and picture memory subtests. Design memory is a subtest that asks the individual to draw, from memory, a geometric design presented to them on a card for five seconds and not allowed to commence drawing until after a ten second delay. This subtest assesses short-term, visual encoding of new and unfamiliar information. Due to the level of motor difficulties experienced by some younger and older individuals, there is a short copy task at the beginning of the subtest to achieve a baseline for differentiating memory deficits from motor deficits. Picture memory is a subtest that asks the individual to compare a stimulus picture with a response picture of a complex scene. The object is to identify as many of the elements that have "been moved, changed or added" from the first scene on the second scene [4].



Wide Range Assessment of Memory and Learning. Fig. 1 The general structure of the core indexes and their comprised subtests.

The attention and concentration index assesses the individual's ability focus and maintain attention and concentration on a task. This index is comprised of the finger windows and number letter subtests. Finger windows is a subtest that asks the individual to repeat a sequence of responses initiated by the examiner who puts a pencil eraser through asymmetrical holes in a card held perpendicularly to the table. Then the examiner asks the individual to place their finger through the same holes in order. This subtest measures an individual's ability to successfully attend to a sequence of visual steps and repeat them immediately. Number letter is a subtest that asks the individual to attend to a string of numbers and letters presented orally and repeating back the information immediately in a rote format. This subtest measures the individual's ability to attend and repeat back symbolic information that is novel and presented orally [4].

The optional, delay recall and recognition subtests allow for a deeper analysis of memory functioning and have been co-normed with the six core subtests to bolster the validity of comparisons [4]. Sentence memory, sound symbol (8 & up), verbal working memory (9 & up) and symbolic working memory (9 & up), make up the optional subtest group. Story memory delay recall, verbal learning delay recall and sound symbol delay recall (8 & under) comprise the delay recall subtests. Story memory recognition, verbal learning recognition, design memory recognition and picture memory recognition are included in the recognition subtests. Combining the subtest scaled scores on the working memory subtests and summing the recognition subtests will yield a working memory sum and general recognition sum, respectively.

Standardization

The WRAML2 was standardized utilizing a representative national sample of participants aged 5 through 90 years of age. Testing was conducted from March 2002 through June 2003. The sample consisted of 1,200 children and adults spread out over 15 age groups consisting of 80 individuals per group. Standardization was based upon the March 2001 U.S. Census in terms of gender, race/ethnicity, educational attainment and geographic region [4]. States were split up into four geographic locations to ensure a proportionate amount of the sample was represented from each (for further detail see the WRAML2 Administration and Technical Manual).

Difference from WRAML to the WRAML2

The first edition of the *Wide Range Assessment of Memory and Learning* (WRAML) that was published in 1990 was the first standardized test to assess the memory functioning of children. One major revision to the WRAML2 was expanding the age range to 5–90, from 5–17 on the original version. The attention and concentration index score (replacing the Learning Index from the WRAML) and working memory index subtests were added. Through adding additional subtests on recognition, examiners can now get a general recognition sum from summing scaled scores on verbal recognition (composed of story recognition and verbal learning recognition) and visual recognition (composed of design recognition and picture memory recognition). The authors also included additional supplementary data for qualitative analyses. Finally, verbal working memory, symbolic working memory, story recognition, design recognition, picture memory recognition and verbal learning recognition are additions to the WRAML2.

Relevance to Childhood Development

Learning disability, traumatic brain injury, attention deficit-hyperactivity disorder, seizure disorder, primary psychiatric disorder, phenylketonuria, idiopathic mental retardation, brain tumor, leukemia, stroke, and encephalitis are the leading referral questions for pediatric neuropsychological cases [2, 5]. Each of these pathologies will present with myriad of symptoms which may affect the

normal developmental course of the child if left undiagnosed and untreated. Memory, attention and concentration are essential to a child's educational development [1] and are most likely to be impaired in childhood pathologies, especially traumatic brain injuries [2]. The WRAML2 aids in the diagnosis of disorders which would hamper the child's academic achievement, guiding caretakers and professionals in proper intervention and remediation to ensure maximal growth and development [3].

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Williams Syndrome

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Synonyms

Williams-Beuren syndrome

Definition

Williams syndrome (WS) is a genetic disorder that occurs in approximately 1 in 20,000–50,000 births. It is often characterized by health problems, in particular cardiac abnormalities, distinctive facial characteristics, loquaciousness, intellectual disability or significant learning difficulties and a social nature typically described as "delightful."

Description

Historical Perspective

WS was identified by a cardiologist in New Zealand, J.C.R. Williams in the 1960s. He had seen several patients with a condition that was distinguished by supravalvular aortic stenosis or SVAS (a heart defect), stereotypic facial features and intellectual disability. Dr. A.J. Beuren, of Germany, also had experience seeing patients with SVAS and idiopathic infantile hypercalcimia and believed they were part of the same disorder. It was not until the mid-1990s that it was identified as a genetic disorder and the complexity of the disorder was better understood.

Genetics of WS

WS is a syndrome caused by a deletion of several genes on chromosome 7q11.23. Deleted genes involved in the phenotype include elastin (ELN), LIM kinase-1 (LIMK1) and RFC2 gene among others. WS is most commonly caused by a random genetic mutation and not through inheritance. Individuals with WS have a 50% chance of passing the disorder on to offspring, however.

Facial Features

Individuals with WS typically have a stellate or lacey pattern in the irises of their eyes, small stature, broad forehead, prominent eyes, full cheeks, a small upturned-nose, full lips and large ears and are often described as being "cute." They also may have a long philtrum (i.e., the space between the nose and upper lip is elongated), a depressed nasal bridge, small head and long neck.

Early Development Issues

Infants with WS may struggle with feeding problems (e.g., poor suck/swallow reflex, gagging and reflux) extended colic, failure to thrive, and cardiac abnormalities (e.g., SVAS and heart murmurs). In some children, parents and physicians first become concerned when a heart murmur is discovered. The diagnosis of WS is confirmed by a *f*luorescent *i*n *s*itu *h*ybridization (FISH) test when only one copy of the elastin gene is found (in non-WS individuals, there are two copies of the elastin gene). Young children with WS may also experience dental abnormalities such as small, widely spaced and pointed teeth that are likely due to hypocalcaemia.

Cognition

Individuals with Williams syndrome (WS) have a unique cognitive profile of strengths and weaknesses. Typically, individuals with WS have a scattered profile of cognitive abilities in which their visual spatial processing abilities are markedly impaired but facial processing and language, however, remain relatively intact. The general cognitive ability of individuals with WS ranges from moderate intellectual disability to below average when compared to same age peers. Although the majority of individuals with WS have a significant deficit in general cognitive

functioning, there is great variability in cognitive abilities, often making the reliance on general IQ inappropriate. Furthermore, individuals with WS tend to have higher verbal intelligence than nonverbal intelligence. Other cognitive skill areas in which individuals are limited include conceptual knowledge, conversation tasks of number, weight, and substance, and mathematics and applying mathematical skills in everyday life.

Visual-Spatial Processing

Visual spatial processing abilities are significantly impaired in individuals with WS. Constructive and perceptual tasks that demand copying block designs, pictures, and hierarchical figures and judging line orientation, are exceedingly difficult for individuals with WS. In addition, individuals with WS often demonstrate a local processing bias by attending only to the details of the stimuli while neglecting the global aspects of the stimuli. Current research is investigating the possibility that specific genes may contribute to deficits in this area. It has been further suggested that deficient visual-spatial skills are the consequence of poor motor planning and general motor skills, possibly resulting from a weak dorsal stream in the brain. The varying assessment tools and comparison groups (i.e., typically developing individuals vs. individuals with special needs) used to measure the deficit have played a role in the lack of a global understanding of the impact and origins of visual-spatial processing in persons with WS.

Language

The WS population is generally known for being particularly talkative and outgoing, contributing their highly social profile. Such observations have led researchers to examine language abilities as a relative strength in relation to other cognitive deficits. In fact, the various aspects of language development in WS have received the most published research of any domain. These studies have yielded mixed results ranging from typical (but delayed) development in some language domains to atypical in others. Once again, the unique aspect of the domain examined (e.g., grammar, syntax, oral fluency, conversational skills, comprehension, narrative ability, vocabulary, early development, etc.), along with the varying sample sizes and control groups examined makes comparison of results across studies difficult. Regardless of the strength of their language skills, people with WS as a general rule, and at least superficially, are regarded as relatively loquacious and good-natured.

Fine and Gross Motor Skills

Fine motor skills are another area of deficit of the WS profile. Motor deficiency has been noted specifically in the writing skills (e.g., legibility, handedness) of individuals with WS, and simple tasks such as using utensils (e.g., to cut, apply pressure, or spread butter on bread) and tying shoes. Researchers have hypothesized that limited visual-spatial skills and poor muscle tone and development (another characteristic of WS) may contribute to difficulties with gross and fine motor skills. Fine motor movements especially require fairly sophisticated visual-spatial and motor integration. Children with WS have also been documented as developing delayed or confused handedness, and may display some ambidexterity – using their left hand for certain tasks and their right hand for others.

Social Affinity

Individuals with WS are often characterized as extremely friendly, outgoing, agreeable and empathetic. Reports of their social behavior indicate that they initiate and engage in conversations with others easily and sustain eye contact. Despite these positive social attributes, however, individuals with WS are often reported to be overly friendly, have little inhibition with strangers and are sometimes seen as attention seekers. While they are markedly compassionate and attuned to the feelings and moods of others, many individuals can become distracted and overly distressed by others' problems. Despite their yearning for social interaction and friendship, persons with WS have difficulty making and sustaining friendships. With peers, they may become bossy or have difficulty taking turns. In addition, they may need guidance on respecting the personal space of others and could benefit from other social skills training in order to promote positive peer relations.

Musicality

Early anecdotal and qualitative accounts have asserted that individuals with WS display superior interest, emotional response, and talents with regard to music when compared to the typically developed population. Although their fine motor skills may impede their ability to play certain instruments and many people with WS are unable to read music, abnormalities such as fearfulness of specific sounds (auditory allodynia) and a lowered pain threshold for loud sounds (odynacusis) have been hypothesized reasons for the particular interest in music or sound. However, only eight published studies have examined this characteristic in a research setting, and results are mixed regarding the hypothesized savant musical abilities. Larger standardized studies may help elucidate this suggested phenomenon.

Educational Implications

The majority of children with WS receive special education services and have an individual educational plan

(IEP). Students with WS often receive speech therapy and are in classrooms where an aid is present. In addition, some students are provided a one-on-one aid within the classroom. Most parents of children with WS report being the sole providers of information to school personnel related to the etiology of the disability.

Relevance to Childhood Development

Although WS is a rare disorder, it has implications for better understanding patterns of unique strengths and weaknesses in child development. By studying individuals with WS as well as individuals with other developmental disabilities, we may be better informed about typical development. Furthermore, research on individuals with WS has yielded important findings of brain functioning and linkages between genotype and phenotype.

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Williams-Beuren Syndrome

►Williams Syndrome

WISC-IV

►Wechsler Intelligence Scale for Children, Fourth Edition

Wisconsin Card Sort Test

►Wisconsin Card Sorting Test

Wisconsin Card Sorting Test

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Synonyms

Card-sorting test; WCST; Wisconsin card sort test

Definition

A test of executive functioning ability that requires subjects to sort cards, altering the chosen sorting approach based on feedback received at unannounced intervals during the task.

Description

The Wisconsin Card Sorting Test (WCST) is a commonly-used psychological assessment instrument designed to assess *executive functioning* abilities. Executive functions encompass a variety of cognitive abilities that are critical to successful performance of cognitive and behavioral tasks, including: sustained attention; goal selection; planning; problem solving; abstract reasoning; organization; initiation; self-monitoring; error detection and correction; creativity; and self-awareness.

The WCST has been referred to as the "prototypical executive functioning task in neuropsychology" ([4], p. 55). The WCST requires individuals to sort 64 or 128 cards (depending on test form). These cards depict symbols that vary in terms of color, shape, and number. The sorting rule changes throughout the task, permitting examination of the individual's ability to switch among sorting categories without randomly responding or persisting with previously successful strategies. The WCST was originally normed for use with adults ages 60 and below. Later, norms for children, adolescents, and older adults were developed. In addition to the traditional version of the test, which requires the test-taker to sort cards by hand, computerized versions of the task are available.

Lezak [3] argues that, since the WCST's validity depends upon the task's novelty, the test should generally be used as a one-time measure of functioning. Gioia et al. [2] note that children who have difficulty on shifting tasks such as the WCST may also have difficulty when asked to transition between settings or activities. However, they caution that difficulty with standardized tasks of shifting ability, such as the WCST, does not always predict difficulty in applying the skill in other settings, given the differences between the WCST's task requirements and the executive functioning demands of most "real world" tasks.

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Wisdom

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Synonyms

Common sense; Enlightenment; Knowledge; Understanding

Definition

Wisdom is defined as using knowledge that is truthful, discerning, and having a keen insight.

Description

Wisdom may be considered "social intelligence" (e.g., [2]) and the ability to understand the personalities of others, combined with logical reasoning. A wise person uses emotional intelligence and intellectual ability, and also has a strong sense of purpose in life. Research shows wisdom is no longer thought to be related to age [1].

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Without Appetite

►Anorexia Nervosa

Witmer, Lightner

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Life Dates

1867–1956

Introduction

Lightner Witmer's importance to the field of psychology is evidenced by his work in school and clinical psychology as he made significant contributions to both fields. The majority of Witmer's clinical work involved the assessment and treatment of learning and behavioral problems in school children in a clinic setting.

Educational Information

The eldest of three children, Lightner Witmer attended the University of Pennsylvania and received his B.A. in 1888. Witmer taught briefly at a secondary school before he entered the graduate psychology program at the University of Pennsylvania under the supervision of James McKeen Cattell. When Cattell transferred to Columbia University, Witmer moved to Leipzig, Germany to earn his PhD and studied under Wilhelm Wundt, another prominent figure in psychology. He was awarded his Ph.D in 1893.

Upon graduation, Witmer returned to the University of Pennsylvania, where he took over Cattell's laboratory and served as a member of the University of Pennsylvania faculty for 45 years. Initially, Witmer continued his experimental research; however, he later began to focus his research interests on making scientific psychology more "practical." Witmer retired from the University of Pennsylvania in 1937.

Accomplishments

In 1892, Witmer along with other historical figures in psychology including William James, G. Stanley Hall, and James McKeen Cattell founded the American Psychological Association.

In 1894, the University of Pennsylvania organized a special series of courses for public school teachers, and Witmer provided his expertise to teachers in these courses. One of his students approached him about a 14-year-old boy who had an unusual spelling problem. The teacher stated the boy was having difficulty learning how to spell although he was progressing well in other subjects. Witmer treated the problem successfully, and this case, along with many other similar cases, marked the

beginning of Witmer's clinical work. In 1896, Witmer founded the first psychology clinic in the United States to provide such services to the general public.

In 1907, Witmer founded the journal entitled *The Psychological Clinic*, which he edited for 29 years. This journal included research reports, theoretical articles, case studies, and book reviews. *The Psychological Clinic* was the only journal specifically devoted to the development of the field of clinical psychology. In Witmer's article in the journal's first issue, he called for a new profession and proposed that it be termed *clinical psychology.*

Contributions

Witmer is considered to be the founder of clinical psychology and school psychology. Witmer was the first to express the idea of clinical psychology as an emerging field and played a major role in its conceptualization and development. The founding of his clinic in 1896 further evidenced his role in clinical psychology.

His contribution to the field of school psychology is also prominent. Most of Witmer's cases were referrals from schools and included problems relating to severe speech defects, hyperactivity, dyslexia, and other learning disabilities. To honor Witmer's contribution to the field, Division 16 (School Psychology) of the American Psychological Association offers an annual Lightner Witmer Award. This award is presented to school psychologists who have demonstrated exceptional scholarship early in their careers.

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WJ-III

►Woodcock-Johnson III Tests of Achievement
►Woodcock-Johnson III Tests of Cognitive Abilities

WJ-III-ACH

►Woodcock-Johnson III Tests of Achievement

WJ-III-COG

►Woodcock-Johnson III Tests of Cognitive Abilities

Womanhood

►Femininity

Womanly

►Femininity

Womb

►Uterus

Woodcock, Richard W.

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Life Dates

1928–Present

Introduction

Dr. Richard W. Woodcock is an internationally renowned psychologist, psychometrician, and statistician. He is an author of numerous cognitive, achievement, and neuropsychological test batteries, including the Woodcock-Johnson III and Dean-Woodcock Neuropsychological Assessment System. Dr. Woodcock is credited for his

work in developing and introducing the Cattell-Horn-Carroll (CHC) theory and the Rasch statistical methods into individual psychometric measures. Dr. Woodcock has profound backgrounds in the fields of psychology, cognitive theories, and neuropsychology. Additionally, he is known for the integration of these fields into psychological testing [2–4, 8].

Education Information

Dr. Woodcock holds a B.S. degree in Psychology, an M.Ed. degree in Special Education, and an Ed.D. in Psycho-Education and Statistics from the University of Oregon. Following a Postdoctoral Fellowship in Neuropsychology at Tufts University School of Medicine, Dr. Woodcock accepted a position of Assistant Professor of Psychology and Director of the Reading Clinic at Western Oregon University from 1957 to 1961. He served as an Associate Professor of Special Education at the University of Northern Colorado from 1961 to 1963. In 1963, Dr. Woodcock was awarded a Research Professor of Special Education, Senior Scientist, and Acting Director of the Institute on Mental Retardation and Intellectual Development at the George Peabody College at Vanderbilt University. During his time at the Vanderbilt University, he directed the Peabody-Chicago-Detroit Reading Project. Dr. Woodcock took on the position of Editor and Director of Research for the American Guidance Service and served in that role from 1968 to 1972. From 1985 to 1988, Dr. Woodcock served as a Visiting Scholar in the Division of Special Education and Rehabilitation at the University of Arizona, and in 1988 he accepted the position of Visiting Scholar in the Department of Psychology at the University of Southern California. He was Research Professor of Psychology at the University of Virginia from 1993 to 1998. Currently, Dr. Woodcock serves as the Director of Measurement/Learning/Consultants, a test development and research organization that he founded in 1972 [1].

Accomplishments

Dr. Woodcock's work became well-known for introducing a number of psychometric features in the area of psychoeducational and cognitive assessment, which included co-normed batteries, theory-based test construction, expansive coverage of content, application of tests across the life span, age and grade norms, parallel forms in languages other than English, and cross-language equating. Dr. Woodcock is a Diplomate of the American Board of Professional Psychology (ABPP) and a Fellow of the American Psychological Association. He also is a recipient of the Senior Scientist Award granted by the American Psychological Association, Division of School Psychology in recognition of significant contributions to the field of school psychology [1].

Contributions

Dr. Woodcock contributed to the field of school psychology and neuropsychology through the reinforcement of the CHC theory of cognitive abilities and the Rasch statistical method, which is used to equalize increases in item difficulty, into widely used clinical measures. He is also an author of *W scores*, which are a special transformation of the Rasch ability scale that are suited for use as an intermediate step in the interpretation of test performance. Moreover, Dr. Woodcock modeled the scientific-empirical test development principles, which became the standard of modern test development [5–7, 9].

Dr. Woodcock has authored and published numerous major psychoeducational, cognitive, and neuropsychological assessment batteries, including the Colorado Braille Battery, the Peabody Rebus Reading Program, the Goldman-Fristoe-Woodcock Auditory Skills Test Battery, the Woodcock Reading Mastery Tests–Revised, the Woodcock-Johnson® Psycho-Educational Battery–Revised (WJ-R®), the Batería Woodcock-Muñoz: Pruebas de habilidad cognitiva–Revisada, the Batería Woodcock-Muñoz: Pruebas de aprovechamiento–Revisada, the Woodcock Language Proficiency Battery–Revised, English and Spanish Forms, the Scales of Independent Behavior–Revised, the Woodcock-Muñoz Language Survey, English and Spanish Forms, the Woodcock-McGrew-Werder Mini-Battery of Achievement, the Woodcock-Johnson III Tests of Cognitive Abilities, the Woodcock-Johnson III Tests of Achievement, WJ III NU Tests of Achievement, WJ III NU Tests of Cognitive Abilities, and the Dean-Woodcock Neuropsychological System.

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Woodcock-Johnson III Tests of Achievement

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Synonyms

WJ-III; WJ-III-ACH

Definition

The Woodcock-Johnson III Tests of Achievement (WJ-III-ACH) is an individually administered standardized assessment battery of academic achievement.

Description

As part of the Woodcock-Johnson – Third Edition (WJ-III), the WJ-III-ACH provides a comprehensive measure of general achievement ability, as well as measures of oral language ability and specific achievement skills. It has been co-normed with the Woodcock-Johnson III Tests of Cognitive Abilities (WJ-III-COG), which allows for more accurate comparisons among an individual's achievement skills, oral language ability, and cognitive abilities than would the use of different measures. The WJ-III-ACH can also be administered independently of the WJ-III-COG, or with other assessments, depending on the needs of the practitioner. In general, the WJ-III-ACH is designed for use with individuals aged 5–95 years, or in grades kindergarten through grade 18. However, some subtests are appropriate for use with individuals as young as 2 years of age, or in preschool.

The WJ-III-ACH is organized into five broad academic domains: Reading, Math, Written Language, Oral Language, and Academic Knowledge. Each of these domains is divided into several cluster scores, with a total of 19 cluster scores available in the WJ-III-ACH. For example, the Reading, Math, and Written Language domains each include measures of basic skills, higher-level or application skills, and fluency/automaticity. Administration of these measures enables practitioners to obtain the Broad Reading, Broad Math, and Broad Written Language cluster scores, as well as the supplementary clusters of Academic Skills, Academic Fluency, and Academic Applications. The WJ-III-ACH also provides an overall measure of general achievement skills termed Total Achievement. In line with the theoretical basis of the WJ-III-COG, the WJ-III-ACH provides measures of five of the broad abilities identified in CHC theory: Reading-Writing (*Grw*), Quantitative Knowledge/Mathematics (*Gq*), Comprehension-Knowledge (*Gc*), Auditory Processing (*Ga*), and Long-Term Retrieval (*Glr*).

The WJ-III-ACH is available in two equivalent alternative forms: Form A and Form B. Each form is comprised of 22 subtests and is broken into two parts: the Standard Battery (Tests 1–12) and the Extended Battery (Tests 13–22). In general, administration of Tests 1 through 11 and Test 19 is needed in order to obtain measures of the five broad academic domains. However, depending on the purpose of the assessment, the practitioner is able to select and administer any combination of subtests that will provide the most relevant information. Additional information on the selection of subtests and the dynamic nature of subtest selection based on practitioner needs is available in the WJ-III-ACH Examiner's Manual.

Administration of the WJ-III-ACH subtests results in raw scores that can be converted to age- or grade-based standard scores, age- and grade-equivalents, and percentile ranks. Additionally, computer scoring software (WJ-III Compuscore and Profiles Program) can be used to calculate the relative proficiency index (RPI) and to convert WJ-III-ACH raw scores into W scores, *z* scores, *T* scores, stanines, and normal curve equivalents (NCEs). Normative and ipsative analysis of an individual's scores can help practitioners determine if the individual presents with any significant strengths or weaknesses in a wide range of both broad and narrow achievement skills. Specifically, the computer scoring software allows practitioners to conduct intra-individual discrepancy analyses, such as between cluster scores or broad academic domains. When the WJ-III-COG is administered in conjunction with the WJ-III-ACH, ability/achievement discrepancy analyses are also available.

Historical Background

The WJ-III-ACH is the third rendition of Woodcock-Johnson measures of achievement skills. The series began

in 1977 with the Woodcock-Johnson Psychoeducational Battery (WJPEB), which consisted of Tests of Cognitive Ability, Tests of Achievement, and Tests of Interest Level. The Tests of Achievement consisted of ten subtests measuring reading, mathematics, written language, and knowledge. Although the WJPEB was not based on any particular theoretical framework, the next edition of the test, the Woodcock-Johnson Psychoeducational Battery – Revised (WJ-R), was based largely on Cattell [5] and Horn's [6] work with *Gf-Gc* theory. Published in 1989, the WJ-R consisted of the WJ-R Tests of Cognitive Ability (WJ-R-COG) and the WJ-R Tests of Achievement (WJ-R-ACH). The WJ-R-ACH consisted of 14 subtests again measuring reading, mathematics, written language, and knowledge. After Horn's *Gf-Gc* theory was meshed with John Carroll's three-stratum theory to create the CHC theory, Richard Woodcock adapted and applied that theory to create the Woodcock-Johnson III (WJ-III), which was published in 2001. Based upon the CHC theory, the WJ-III consists of the WJ-III Tests of Cognitive Ability (WJ-III-COG) and the WJ-III Tests of Achievement (WJ-III-ACH).

Psychometric Data

The WJ-III-ACH normative data were collected in the U.S. from a nationally representative, geographically diverse, and economically diverse sample of 8,818 individuals. The overall sample was divided into categories by age, including the preschool sample, the kindergarten through twelfth grade sample, the college/university sample (undergraduate and graduate), and the adult sample. In 2007, the Woodcock-Johnson III Normative Update (WJ-III-NU) was created by re-calculating the pre-existing normative data to match the 2005 U.S. Census data. More detailed information on the normative sample for the WJ-III-ACH is available in the WJ-III Technical Manual and the WJ-III-NU Technical Manual.

Reliability statistics for the WJ-III-ACH were calculated using the split-half procedure for non-speeded tests and Rasch analysis procedures for speeded tests and tests with multiple-point scored items. Twenty of the twenty-two WJ-III-ACH subtests obtained median reliabilities of 0.80 or higher, with nine subtests obtaining median reliabilities of 0.90 or higher. All nineteen cluster scores obtained median reliabilities of 0.80 or higher, with sixteen cluster scores obtaining median reliabilities of 0.90 or higher. Test-retest measures of the WJ-III-ACH speeded tests resulted in reliabilities ranging from 0.76 to 0.96. Extended retest interval data from test-retest measures of selected WJ-III-ACH subtests support the reliability of the WJ-III-ACH at extended retest intervals. Additional interrater reliability studies conducted for WJ-III-ACH subtests requiring subjective scoring (i.e., Writing Samples, Writing Fluency, and Handwriting) resulted in interrater correlations ranging from 0.78 to 0.98. Evidence for the equivalence of Form A and Form B of the WJ-III-ACH includes item difficulty analysis, response ogive analysis, standard error comparisons, and alternate form correlations.

Validity evidence for the WJ-III-ACH includes test content evidence (e.g., the process of item development), developmental patterns evidence (e.g., growth curves for nine cluster scores), and internal structure evidence (e.g., test score intercorrelations, confirmatory factor analysis). Evidence for the validity of the WJ-III-ACH is also provided by the results of special study samples, including the correlations between the WJ-III-ACH and a wide range of other widely-used achievement assessments. More detailed information about and discussion of the validity evidence for the WJ-III-ACH is available in the WJ-III Technical Manual.

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Woodcock-Johnson III Tests of Cognitive Abilities

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Synonyms

WJ-III; WJ-III-COG

Definition

The Woodcock-Johnson III Tests of Cognitive Abilities (WJ-III-COG) is an individually administered standardized assessment battery of cognitive functioning.

Description

As part of the Woodcock-Johnson – Third Edition (WJ-III), the WJ-III-COG provides a comprehensive measure of general ability, as well as measures of specific cognitive functions. It has been co-normed with the Woodcock-Johnson III Tests of Achievement (WJ-III-ACH), which allows for more accurate comparisons among an individual's cognitive abilities, oral language ability, and achievement skills than would the use of different measures. The WJ-III-COG can also be administered independently of the WJ-III-ACH, or with other assessments, depending on the needs of the practitioner. In general, the WJ-III-COG is designed for use with individuals aged 5–95 years; however, some subtests are appropriate for use with individuals as young as 2 years of age. The WJ-III-COG also provides special normative tables for college and university students.

Unique among assessments of cognitive and intellectual functioning, the WJ-III-COG is based on the Cattell-Horn-Carroll (CHC) theory of cognitive abilities. The WJ-III-COG measures seven broadly defined abilities identified in CHC theory: Long-Term Retrieval (*Glr*), Short-Term Memory (*Gsm*), Processing Speed (*Gs*), Auditory Processing (*Ga*), Visual-Spatial Thinking (*Gv*), Comprehension-Knowledge (*Gc*), and Fluid Reasoning (*Gf*). These broad CHC theory abilities are grouped into three larger performance clusters: Verbal Ability (*Gc*), Thinking Ability (*Glr*, *Gv*, *Ga*, *Gf*), and Cognitive Efficiency (*Gs*, *Gsm*). The WJ-III-COG also provides an overall measure of general cognitive ability termed the General Intellectual Ability (GIA), as well as a brief measure of general cognitive ability termed the Brief Intellectual Ability (BIA).

Comprised of twenty subtests, the WJ-III-COG is broken into two parts: the Standard Battery (Tests 1–10) and the Extended Battery (Tests 11–20). Administration of Tests 1 through 7 and 11 through 17 provides measures of the seven broad CHC factors. However, depending on the purpose of the assessment, the practitioner is able to select and administer any combination of subtests that will provide the most relevant information. Additional information on the selection of subtests and the dynamic nature of subtest selection based on practitioner needs is available in the Examiner's Manual.

Administration of the WJ-III-COG subtests results in raw scores that can be converted to age- or grade-based standard scores, age- and grade-equivalents, and percentile ranks. Additionally, computer scoring software (WJ-III Compuscore and Profiles Program) can be used to convert WJ-III-COG raw scores into W scores, *z* scores, *T* scores, stanines, and normal curve equivalents (NCEs). The computer scoring software can also calculate an individual's predicted achievement scores and relative proficiency index (RPI). Normative and ipsative analysis of an individual's scores can help practitioners determine if the individual presents with any significant strengths or weaknesses in a wide range of both broad and narrow cognitive abilities. Specifically, the computer scoring software allows practitioners to conduct intra-individual discrepancy analyses, such as between performance clusters or between CHC factors. When the WJ-III-COG is administered in conjunction with the WJ-III-ACH, ability/achievement discrepancy analyses are also available.

Historical Background

The WJ-III-COG is the third rendition of Woodcock-Johnson measures of cognitive abilities. The series began in 1977 with the Woodcock-Johnson Psychoeducational Battery (WJPEB), which consisted of Tests of Cognitive Ability, Tests of Achievement, and Tests of Interest Level. The Tests of Cognitive Ability measured both verbal and nonverbal functions, as well as a wide range of mental processes, and resulted in an overall cognitive ability score termed the Broad Cognitive Ability (BCA). Although the WJPEB was not based on any particular theoretical framework, the next edition of the test, the Woodcock-Johnson Psychoeducational Battery – Revised (WJ-R), was based largely on Cattell [1] and Horn's [2] work with *Gf-Gc* theory. Published in 1989, the WJ-R consisted of the WJ-R Tests of Cognitive Ability (WJ-R-COG) and the WJ-R Tests of Achievement (WJ-R-ACH). The WJ-R-COG measured seven broad abilities identified in *Gf-Gc* theory: Long-Term Retrieval (*Glr*), Short-Term Memory (*Gsm*), Processing Speed (*Gs*), Auditory

Processing (*Ga*), Visual-Spatial Thinking (*Gv*), Comprehension-Knowledge (*Gc*), and Fluid Reasoning (*Gf*). After Horn's *Gf-Gc* theory was meshed with Carroll's three-stratum theory to create the CHC theory, Richard Woodcock adapted and applied that theory to create the Woodcock-Johnson III (WJ-III), which was published in 2001. Based upon the CHC theory, the WJ-III consists of the WJ-III Tests of Cognitive Ability (WJ-III-COG) and the WJ-III Tests of Achievement (WJ-III-ACH).

Psychometric Data

The WJ-III-COG normative data were collected in the U.S. from a nationally representative, geographically diverse, and economically diverse sample of 8,818 individuals. The overall sample was divided into categories by age, including the preschool sample, the kindergarten through twelfth grade sample, the college/university sample (undergraduate and graduate), and the adult sample. In 2007, the Woodcock-Johnson III Normative Update (WJ-III-NU) was created by re-calculating the pre-existing normative data to match the 2005 U.S. Census data. More detailed information on the normative sample for the WJ-III-COG is available in the WJ-III Technical Manual and the WJ-III-NU Technical Manual.

Reliability statistics for the WJ-III-COG were calculated using the split-half procedure for non-speeded tests and Rasch analysis procedures for speeded tests and tests with multiple-point scored items. Eighteen of the twenty WJ-III-COG subtests obtained median reliabilities of 0.80 or higher, with six subtests obtaining median reliabilities of 0.90 or higher. All 23 cluster scores created from combinations of two or more subtests obtained median reliabilities of 0.80 or higher, with twenty cluster scores obtaining median reliabilities of 0.90 or higher. Test-retest measures of the WJ-III-COG speeded tests resulted in reliabilities ranging from 0.69 to 0.87. Additionally, extended retest interval data from test-retest measures of selected WJ-III-COG subtests support the reliability of the WJ-III-COG at extended retest intervals.

Validity evidence for the WJ-III-COG includes test content evidence (e.g., the process of item development), developmental patterns evidence (e.g., growth curves for the seven CHC factors), and internal structure evidence (e.g., test score intercorrelations, confirmatory factor analysis). Evidence for the validity of the WJ-III-COG is also provided by the results of special study samples, including the correlations between the WJ-III-COG and a range of other widely-used cognitive assessments. More detailed information about and discussion of the validity evidence for the WJ-III-COG is available in the WJ-III Technical Manual.

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Word

►Morpheme

Word Attack Skills

►Decoding Skills

Word Blindness

►Dyslexia

Word Deafness

►Childhood Aphasia

Word Finding

►Dysnomia

Word Recognition

►Reading Skills

Word Recognition in Context

►Oral Reading

Word Retrieval

►Dysnomia

Word Structure

►Morphology

Working Memory

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Synonyms

Executive control; Executive functioning; Shifting attention; Short-term memory

Definition

Working memory can be defined as the cognitive system involved in the temporary storage and processing of a limited amount of information. At the same time, the term working memory is conceptualized and defined differently by researchers from different fields, and there are many definitions of working memory. For example, [18] defines working memory as a limited capacity system that provides temporary storage to manipulate information for complex cognitive tasks such as learning and reasoning. [19] state that working memory is the system or mechanism underlying the maintenance of task relevant information during the performance of a cognitive task. [16] claims that working memory refers to the system for temporarily maintaining mental representations that are relevant to the performance of a cognitive task in an activated state. Finally, [9] posits that working memory refers to the relatively small amount of information that one can hold in mind, attend to, or maintain in a rapidly accessible state at one time. Thus, according to most researchers, working memory is a system with multiple components or a collection of interrelated processes that carry out several important cognitive functions simultaneously. A few researchers have postulated that working memory and executive functioning are intertwined, if not the same thing [7].

Description

Working memory is the cognitive system involved in the temporary storage and processing of a limited amount of information with immediate relevance to the task at hand. The functions of working memory are to hold information in mind, to internalize the information, and to use the information to guide behavior without the aid of or in the absence of external cues [18]. There is substantial variation in working memory capacity among individuals and working memory capacity varies dramatically based on the type of information being recalled [16].

Working memory also functions to retrieve information from long-term memory and keep irrelevant information from entering the focus of attention. For example, mentally solving a multi-step math problem requires holding intermediate results in a short-term store while processing this information and keeping distractions at bay. This memory system is important for many high-level cognitive functions, such as general intellectual ability, reasoning, comprehension, problem solving, and analytic skill [8].

Working memory involves the ability to control the focus of attention in addition to supporting the short-term storage of information. In this way, working memory has been distinguished from short-term memory capacity. *Short-term memory capacity* involves the short-term storage of a limited amount of information.

Working memory includes components for storing phonological or verbal features, visual features, spatial locations, and integrated episodes. It also includes an executive attentional component for controlling access to these stores. According to [3] model of working memory, short-term storage and rehearsal of information is primarily accomplished through domain-specific systems – the *phonological loop* for verbal information and the *visuo-spatial sketchpad* for visual images. A domain-general *central executive* coordinates the operation of these storage systems and others, such as long-term memory. The central executive has been linked to the ability to control the focus of attention and allows memory representations to remain highly active in the face of distraction. It is this attention ability that has specifically been shown to drive the relation between working memory and performance. For this reason, working memory capacity is often conceptualized as executive attention [13]. A fourth component has also been added to this model – an *episodic buffer* that integrates information from the phonological loop, the visual-spatial sketchpad, and long-term memory [2].

Although working memory is conceptualized as a cognitive construct supporting complex thinking, it can also be thought of as an individual differences variable, meaning some people have more of this capacity and some have less. With this variability in mind, measures have been developed to assess individual differences in working memory capacity, in order to assess the role of this cognitive construct in performance. A variety of working memory assessments have been developed. Commonly used measures, such as reading span, operation span, and counting span, are designed to assess working memory storage while also processing other information. For example, the Reading Span task (RSPAN) [10] requires individuals to process sentences while actively maintaining a small number of letters in memory. Other assessments include the spatial span test, n-back test, backwards digit span, star counting test, and several others. Many of these assessments can be obtained at the website of Randall Engle: http://www.psychology.gatech.edu/renglelab/ (see also http://www.york.ac.uk/res/wml/TestsofWM.htm). It should be noted that the use of many of these measures has been largely with healthy young adults. Modifications may be necessary with children or other populations, such as de-emphasizing accuracy or simplifying the processing component of the task [8].

Neuroimaging has recently demonstrated that different regions of the brain are involved in the multiple components of working memory [4, 11]. The prefrontal cortex (PFC) is a necessary neural substrate for working memory, but imaging studies have shown that other areas are involved as well. Recent evidence suggests that the dorsolateral PFC but not the ventrolateral PFC is involved in the manipulation of working memory tasks. Additionally, imaging studies suggest that verbal working memory tasks activate the region associated with Broca's area and motor areas of the frontal cortex associated with speech production in the left hemisphere. In contrast spatial working memory tasks activate the right parietal and frontal cortex [16].

Relevance to Childhood Development

Working memory plays an essential role in complex cognition and is closely related to the ability to learn. Measures of working memory are good predictors of children's cognitive abilities, associated with such skills as early reading development and scholastic attainment [21]. Deficient memory abilities can prevent children from acquiring the skills and knowledge necessary for academic success [1, 14].

There is consensus that memory in general, and working memory in particular, develops over the age span. Children's performance on tasks of working memory continues to improve throughout childhood, reaching adult capacities in early adolescence. Working memory capacity and efficiency is highly influenced by attention and cognitive efficiency (speed of carrying out mental processes).

Research on working memory in children has closely aligned with that of adults. For example, as with adults, children's performance on working memory tasks appears to involve both domain-free attention and domain-specific storage factors. And the domain-general central executive component of working memory is more strongly associated with cognitive abilities than simple storage [15].

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WRAML2

▶Wide Range Assessment of Memory and Learning

Writing Development

▶Literacy Development

Writing Learning Disability or Specific Learning Disability (LD)-Written Expression

▶Dysgraphia

Writing Skills

Synonyms

Written communication skills; Written expression skills; Written language skills

Definition

The skills used to communicate one's knowledge in written/text format so that others fluent in that language can read and understand the ideas being presented.

Description

Writing skills are generally taught through direct instruction, with mastery of more basic skills required before mastery of higher order skills can effectively take place. The most basic skills are those involved in handwriting. These include writing posture, grip on the writing utensil, letter formation and avoidance/correction of reversals, spacing of letters and words, slant of letters, alignment of letters and words, and rate/fluency of production. Higher order writing skills include: spelling, which incorporates accurate phoneme/grapheme correspondence, orthography, and morphology; punctuation and capitalization; and editing. Beyond these

basic writing skills another level of written expression exists that further contributes to the complexity of written language. These skills include accurate use of grammar and syntax, vocabulary, structure/style, revision, and knowing and writing appropriately for one's audience.

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Written Communication Skills

►Writing Skills

Written Expression Skills

►Writing Skills

Written Language Skills

►Writing Skills

X

45 X 0

►XO Syndrome

47, XYY Karyotype

►XYY Syndrome

47, XYY Syndrome

►XYY Syndrome

48 XXXY Syndrome

►XXXY Syndrome

XO Syndrome

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Synonyms

Bonnevie-ullrich-turner syndrome; 45 X 0

Definition

XO syndrome is a disorder of the sex chromosomes, occurring in females, in which one of the two X chromosomes is completely or partially absent. XO syndrome causes a number of symptoms that vary greatly among individuals, but generally include small stature, amennorhea and infertility.

Description

Prevalence

Estimates of the prevalence of XO syndrome vary from study to study, with the most common estimate being 1 in 2,500 live female births. However, lower prevalence rates, as low as 1 in 5,000–8,000 female live births, have been reported in some studies.

Many more XO syndrome babies are conceived than born. Approximately 1–2% of females conceived are missing an X chromosome; however, most are miscarried early in the pregnancy, usually during the first trimester. Ten percent of all miscarriages are thought to be caused by XO syndrome. Ultrasounds of some XO syndrome babies who make it to the second trimester show abnormalities that are connected with an increased chance of miscarriage, such as hydrops fetalis (edema of some fetal tissue, including the fetal subcutaneous tissue, which can result in a fetal form of heart failure).

Causes

Humans are typically born with 23 pairs of chromosomes, one member of each pair coming from the biological father and the other from the biological mother. One pair of chromosomes is the sex chromosomes, those that determine a person's biological sex. A person with two X chromosomes (one from each parent) is female, and a person with one X chromosome and one Y chromosome (from the mother and father, respectively) is male.

XO syndrome typically occurs when a child receives an X chromosome from one parent, but no X or Y chromosome from the other. This condition is called monosomy X. The child is considered to be female because no Y chromosome is present. At least one study found the X chromosome received is approximately equally likely to come from the father or mother. Other studies have found differing results, including as high as 90% of the "missing" chromosomes coming from the father.

Another genetic pattern for the disorder called Turner syndrome is mosaicism. It is estimated that approximately 35% of cases originate in this manner. A mosaic occurs when cells in the person's body do not have the same

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number of chromosomes. For example, one cell may have 46 chromosomes, and another 45.

Diagnosis

During pregnancy, a test called amniocentesis is used to collect genetic material for study. Ultrasounds can sometimes show abnormalities in the fetus suggestive of XO syndrome, but a karyotype of the blood is considered the definitive test for diagnosis of the syndrome, and the particular variation of the syndrome that the person may have (monosomy X, mosaics, etc.).

Symptoms

No two women with XO syndrome share the exact same symptoms. Although the disorder manifests itself differently in each woman who has it, certain symptoms are seen with some frequency. For example:

- Lack of/underdeveloped ovaries
- Infertility
- Failure to experience menarche (the beginning of menstruation)
- Inadequate production of estrogen
- Osteoporosis (later in life)
- Short stature
- Webbed neck
- Heart defects (e.g., coarctation of the aorta and aortic valve abnormalities)
- Aortic dissection
- Mitral valve prolapse
- Lymphedema (swelling or "holding water", especially in the hands and feet)
- Impaired spatial perception
- Broadening of the chest (shield chest)
- Widely spaced nipples
- Short neck
- Low neck hairline
- Short metacarpal IV (in hands)
- Cubitus valgus (arms turn out at elbows)
- Drooping eyelids
- Narrow jaw
- Narrow nails
- Deep set nails
- Low-set ears
- Increased weight, obesity
- Poor breast development
- Horseshoe kidney
- Visual impairments
- Ear infections and hearing loss
- Type II diabetes
- High blood pressure

Treatment and Prognosis

Treatments are generally geared to the specific symptoms of each XO syndrome patient. Certain serious symptoms (particularly those of the cardiac system) require close monitoring. Both growth hormone and estrogen replacement therapy are used in many XO females to increase stature and cause the onset of menstruation. Surgery is often done early in life to reduce webbing of the neck. Most females with XO syndrome have a normal life expectancy.

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XXXY Syndrome

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Synonyms

Barr-Shaver-Carr syndrome; 48 XXXY syndrome

Definition

The XXXY syndrome is a sex chromosome that affects one in 17,000 boys. It can also be called 48, XXXY syndrome because such individual has 48 chromosomes instead of the normal 46, due to the extra two sex chromosomes. Most researchers believe that 48, XXXY syndrome is a variation of Klinefelter syndrome (XXY syndrome), with the 47, XXY syndrome's dysmorphic features being mild, multiple and widespread in the 49, XXXXY syndrome and intermediate level of the spectrum in 48, XXXY. In Klinefelter cases, 80% of them are the karotype of 47, XXY, while the remaining 20% are the different

variants, including mosaicism. Among all the variants, 48, XXXY is the commonest observed. With the addition of each X chromosome, there is a significant increase in somatic malformations and mental retardation.

Description

The symptoms and effects of Klinefelter syndrome increase with each additional X chromosome present in the male. Thus, males with 48, XXXY syndrome experience similar symptoms as males afflicted with 47, XXY chromosome, only to a greater degree. The characteristics of 48, XXXY syndrome in a male can be categorized into physical and mental effects. The most apparent physical effect of 48, XXXY syndrome is the decrease of a male's production of testosterone and on his male features. Many of these individuals also experience significant breast growth, as well as significantly smaller penis size. One of the major effects of the 48, XXXY syndrome is infertility. This syndrome causes increased amounts of two hormones, follicle stimulating hormone (FSH) and luteinizing hormone (LH). This results in hyalinization and fibrosis in the seminiferous tubules, where the sperm are normally located. As a result, 48, XXXY males often have smaller and firmer testicles, which then prevents the production of sperm. Other than that, a 48, XXXY individual has less facial and pubic hair growth. Most people with this syndrome are also weaker in strength and are clumsier. It is important to note that this syndrome happens before conception and is not related to any environment, lifestyle, or parental dietary factors.

Relevance to Childhood Development

Mentally, individuals affected by the 48, XXXY syndrome experience significant deficits in developmental and learning abilities. A large majority of these people have difficulties in learning new knowledge or skills including basic academic, speech, and language skills. Some of them are also affected intellectually as they are diagnosed with mental retardation or obtain lower IQ scores. Many 48, XXXY individuals find it hard to interact with others socially and tend to be more shy, anxious or immature than their peers. Due to their condition, individuals with 48, XXXY syndrome are also exposed to higher likelihood of high stress levels, depression and anxiety.

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XY Gonadal Dysgenesis

►Swyer Syndrome

XYY Chromosome Pattern

►XYY Syndrome

XYY Syndrome

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Synonyms

Diplo-Y Syndrome; Polysomy Y; 47, XYY Karyotype; 47, XYY Syndrome; XYY Chromosome Pattern; YY Syndrome

Definition

XYY syndrome (47, XYY) is a rare chromosomal disorder that affects males [1]. It is caused by the presence of an extra Y chromosome. Males normally have one X and one Y chromosome. However, individuals with this syndrome have one X and two Y chromosomes. Associated characteristics may include behavioral problems and learning disabilities. Intelligence is usually normal, although IQ, on average, is 10–15 points lower than non-affected siblings [1].

Description

Most often, the extra Y chromosome causes no unusual physical features or medical problems. 47, XYY boys demonstrate an increased growth velocity during earliest childhood, with an average final height approximately 7 cm above expected final height [2]. Severe acne was noted in a very few early case reports, but dermatologists specializing in acne now doubt the existence of a relationship

between acne and 47, XYY. Testosterone levels (prenatally and postnatally) are normal in 47, XYY males [2]. Most XYY males have normal sexual development and usually have normal fertility [2]. Since 47, XYY is not characterized by distinct physical features, the condition is usually detected only during genetic analysis conducted for other purposes [2].

Causes and Incidence: 47, XYY is not inherited, and is viewed as the product of any atypical event during the formation of sperm cells [2]. An error in chromosome separation during metaphase II called nondisjunction can result in sperm cells with an extra copy of the Y chromosome. If one of these atypical sperm cells contributes to the genetic makeup of a child, the child will have an extra Y chromosome in each of the body's cells [1].

In some cases, the addition of an extra Y chromosome results from nondisjunction during cell division during a post-zygotic mitosis in early embryonic development [2]. This can produce 46, XY/47, XYY mosaics. About 1 in 1,000 boys are born with a 47, XYY karyotype [1]. The incidence of 47, XYY is not affected by advanced paternal or maternal age.

Relevance to Childhood Development

47, XYY boys have an increased risk of learning disabilities (in up to 50% of cases) and delayed speech and language skills [1]. A national survey of US children conducted in 2004 for the Center for Disease Control and Prevention found that 10% of 47, XYY boys had a learning disability [2]. As with 47, XYY boys and 46, XXX girls, IQ scores of 47, XYY boys average 10–15 points below their siblings [2]. It is important to realize that this amount of variation – an average difference of 12 IQ points – occurs naturally between children in the same family [1]. Developmental delays and behavioral problems are also possible, but these characteristics vary widely among affected boys and men, are not unique to those with 47, XYY and are managed no differently than in XY males [1]. Lastly, aggression is not seen more frequently in 47, XYY males [1].

Treatment and Intervention: No noted intervention is required at birth, however, school performance should be monitored, and intervention implemented where necessary particularly with respect to speech and language development. Referrals should only be made if necessary; these may include to the school/clinical psychologist [1]. There is increasing evidence that a supportive environment is beneficial. It has also been shown that those diagnosed antenatally tend to have a better outcome. It is thought this may be due to the children being treated and encouraged appropriately, rather than being regarded as a "problem child [2]." There is no increased risk of other pathology.

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Y

Young Caregivers

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Synonyms

Caregiving youth; Young carers

Definition

Many definitions for "Young Carers" exist in qualitative and quantitative research which has been conducted in the United Kingdom (UK), Australia, and Canada. For example, in 1998, the Carers National Association (now Carers UK) developed the following definition of a young carer: "Anyone under the age of 18 *whose life is in some way restricted* because of the need to take responsibility for the care of someone who is ill, has a disability, is experiencing mental distress, or is affected by substance misuse" [7, p. 6]. In the United States, there is not an official definition of young caregivers as there is in other countries. However, the American Association of Caregiving Youth (AACY) adopted the term "Caregiving Youth" to describe children engaging in caregiving roles.

Description

Within Western civilization, childhood and adolescence is considered a "protected" stage of life, where there is not an expectation that children and teenagers will take on a significant amount of responsibility such as caregiving [3]. According to the National Alliance for Caregiving and the United Hospital Fund Study [10], 1.3–1.4 million children in the United States provide some form of caregiving to a sick and/or disabled person. Given that many children reside with a parent, grandparent, or sibling with a disability, many children may be called upon to provide care to family members with whom they reside [13, 14].

Frank [6] stated that young carers can be classified into three different levels of caring (a) Sole Carer; (b) Supportive Carer; and (c) Sibling Carer. First, a sole carer (or primary caregiver) is a child who is the only person in the home who can provide care because no other adults are available. Second, a supportive caregiver or auxiliary [13, 14] is defined as someone who assists a capable adult who is the primary caregiver. Finally, a sibling carer is a child who helps care for a sibling with a disability or chronic illness.

Warren [16] explored the types of activities young caregivers are engaged in compared to non-caregiving peers. Warren found young caregivers were engaged in (a) domestic tasks; (b) general care and other tasks; (c) personal and intimate care; and (d) emotional support. Warren's categories of activities are consistent with those described by Frank [6] that included (a) practical tasks and responsibilities (such as cooking, housework, shopping, physical care, and personal care and toileting) and (b) emotional issues. Warren found that young caregivers engaged in significantly more housework than non-caregiver peers who were primarily responsible for their own bedrooms. Young caregivers were also engaged in tasks such as assisting with financial paperwork, providing care to younger siblings, giving medication, assisting with toileting and showering, and assisting with drinking and eating.

Relevance to Childhood Development

Although the caregiver role may result in stress for the child, some positive outcomes include family unity, increased preparation for adulthood, sense of responsibility, and compassion for others [12, 15]. While the field of caregiving has been greatly explored and family caregiving research is well established, the area of young caregivers remains in its infancy with less than 15 years of existing research literature. The United Kingdom (UK) has been in the forefront of research and policy related to young caregivers [1, 3, 4]. The research on young carers in the UK has led to a significant amount of public policy geared toward the assessment, support, and protection of young carers [3, 6].

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Young Carers

►Young Caregivers

Youth

►Adolescence

YY Syndrome

►XYY Syndrome

Z

Z Drug

▶Ambien (Zolpidem)

Z Score

▶Standard Scores

Zetran

▶Diazepam

Ziprasidone

▶Geodon®

Zits

▶Acne

Zoldem

▶Ambien (Zolpidem)

Zolfresh

▶Ambien (Zolpidem)

Zoloft®

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Synonyms

Sertraline

Definition

A prescription medication FDA approved for the treatment of major depression, obsessive-compulsive disorder, panic disorder, post-traumatic stress disorder, premenstrual dysphoric disorder, and social anxiety disorder.

Description

This medication is a selective serotonin reuptake inhibitor available in a tablet or as an oral solution.

The recommended starting dose for this medication is 25 or 50 mg taken once a day. Maximum suggested dose is 200 mg a day. This medication should only be taken as directed by a doctor. This medication may need to be taken for four weeks before improvement in symptoms is seen.

Concomitant use in patients taking monoamine oxidase (MAO) inhibitors is not advised. Serotonin syndrome may occur with the use of certain other serotonergic drugs.

Some side effects are listed here: decreased sexual desire, decreased appetite and weight loss, diarrhea, dizziness, drowsiness, headache, shaking, and trouble sleeping.

Relevance to Childhood Development

Zoloft® is FDA approved for the treatment of obsessive compulsive disorder in children ages 6–17. Children may be monitored for appropriate growth and weight while taking this medication as it may decrease their appetite.

A medication guide must accompany this medication containing information related to the increased risk of suicidal thinking and behavior in children, adolescents, and young adults compared to those not taking the medication. Doctors will monitor patients closely for

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worsening of symptoms, change in behavior, and thoughts of suicide. Patients are strongly encouraged to notify their health care provider to report sudden changes in mood, behavior, thoughts, or feelings.

References

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2. American Society of Health-System Pharmacists. (2008). *AHFS drug information* (24th ed., pp. 2385–2401). Maryland: American Society of Health-System Pharmacists.
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Zolpidem

►Ambien (Zolpidem)

Zolt

►Ambien (Zolpidem)

Zone of Proximal Development

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Synonyms

Scaffolding; Zo-Ped; ZPD

Definition

The zone of proximal development is the hypothetical space between that which one can accomplish alone and that which one cannot accomplish, even with assistance. Lev Vygotsky has defined the ZPD as, "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" ([1], p. 86).

Description

Lev Vygotsky, an early twentieth century Russian psychologist, initially theorized and explored the ZPD as a means of understanding the circumstances under which children learn best. According to Vygotsky, ideal learning situations should be aimed at the middle of the zone of proximal development. In other words, learning tasks should not be so easy that children can accomplish them without any assistance, but they should not be so difficult that children cannot accomplish them, even with the help of an expert. Over time, the zone of proximal development changes. As individuals master easier tasks, they are more prepared to conquer difficult tasks. Thus, the process of learning drives the ZPD forward.

According to Vygotsky, experts can play an important role in advancing the learning of novices. The expert may be a teacher whose task is to provide the support necessary for a novice student to accomplish a task or solve a problem she or he is unable to complete alone. These supports are often referred to as *scaffolding*. Importantly, scaffolding a task or problem-solving experience does not mean the expert completes the task. Instead, the expert may provide information or pose prompting questions designed to help the novice solve the problem.

Relevance to Childhood Development

The zone of proximal development was initially conceptualized as a means of understanding the progress of children's learning and teachers' role in that progression. It can be used as a tool for assessing the appropriateness of a task – both in and out of the classroom – and for identifying the limitations of children's abilities at a particular point in development. Two important notes about the uses of ZPD are warranted. First, Vygotsky was deeply concerned with the role of social context in learning. Tasks appropriate for an individual in one setting may be different for other individuals or in other settings. Second, the ZPD should progress with development. The zone is not static and must frequently be reassessed in order to ensure tasks are neither too easy nor too difficult.

References

1. Vygotsky, L. S. (1978). *Mind and society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Additional Resources

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Moll, L. C. (2005). *Vygotsky and education: Instructional implications and applications of sociohistorical psychology*. Cambridge, UK: Cambridge University Press.

Rogoff, B., & Wertsch, J. V. (1984). *Children's learning in the "zone of proximal development"*. San Francisco: Jossey-Bass.

Vygotsky, L. S. (1986). *Thought and language*. Cambridge, MA: MIT Press.

Zo-Ped

►Zone of Proximal Development

ZPD

►Zone of Proximal Development

Z-Scores

►Norm-Referenced Scores

Zyban

►Bupropion

Zydis®

►Zyprexa®

Zyprexa®

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Synonyms

Olanzapine; Zydis®

Definition

A prescription medication FDA approved for the treatment of schizophrenia, acute manic or mixed episodes associated with bipolar disorder, maintenance treatment of bipolar disorder, and acute agitation in people with schizophrenia or bipolar mania.

Description

This medication is an atypical antipsychotic available in tablet, orally disintegrating tablet, or injection.

The recommended starting dose for the oral tablets is 5 or 10 mg once daily. Maximum recommended dose is 20 mg a day. This medication should only be taken as directed by a doctor. The intramuscular injection form of this medication is generally just used in the hospital setting.

Some side effects are listed here: twitching or muscle movements you cannot control, sleepiness, headache, dizziness, nausea, chest pain, anxiety, weight gain, and weakness. Zyprexa® may cause an increase in blood sugar levels and cholesterol levels. This medication may cause weight gain. Elderly patients with dementia-related psychosis taking this class of medications are at increased risk of death. This medication may cause lightheadedness when going from a lying or sitting position.

Relevance to Childhood Development

Zyprexa® is not FDA approved for use in children. Children and adolescents will be monitored closely if a doctor prescribes this medication for childhood-onset schizophrenia.

References

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2. American Society of Health-System Pharmacists. (2008). *AHFS drug information* (24th ed., pp. 2461–2476). Maryland: American Society of Health-System Pharmacists.
3. Lexi-Drugs Online [database online]. Hudson, OH: Lexi-Comp. Accessed August 26, 2008.